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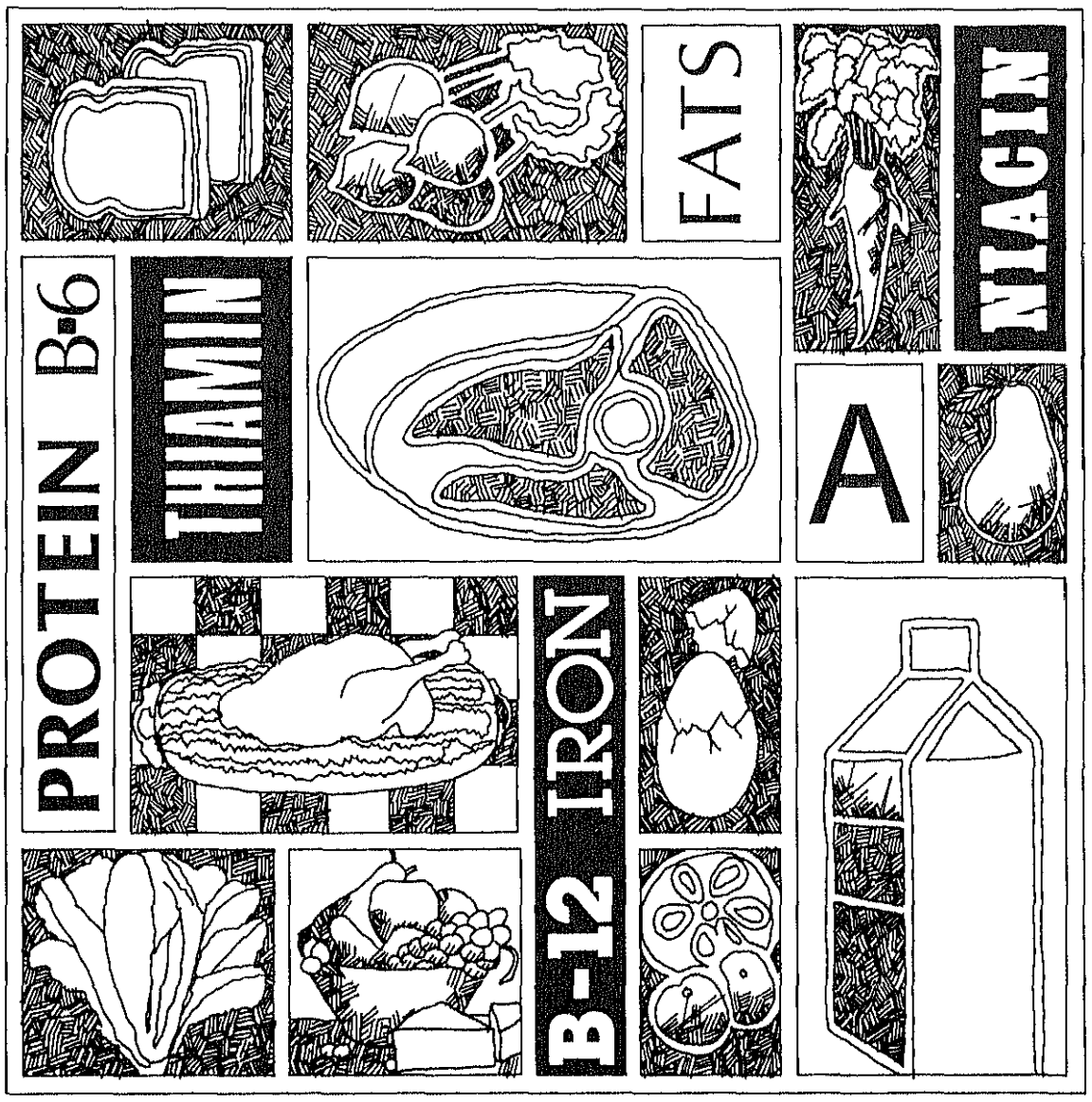
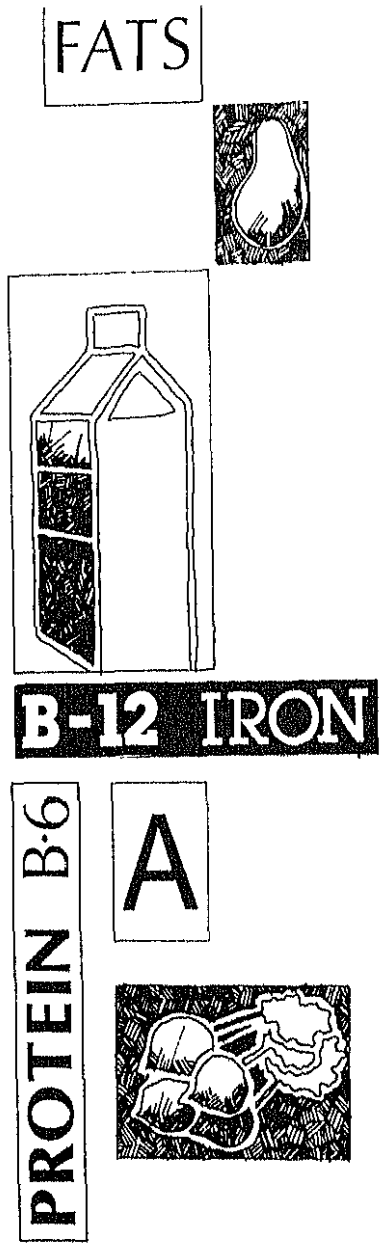
Nutrient Content of the National Food Supply





Special this Issue

The Nutrient Content of the National Food Supply

Levels of most nutrients in the U.S. food supply in 1978 averaged just about the same or a little higher than the year before. The only exception was in our intake of vitamin B_{12} –the result of decreased beef production. And a comparison with the 1977 data shows that our intake of total fat has risen.

The authors use national food disappearance statistics from the turn of the century to 1978 to trace trends in the U.S. diet. Over the years, there have been some interesting shifts in our eating habits. For example, since 1900-13, over one-fourth more fat has been added to the U.S. diet.

Since the late 1960's, there's been a marked decline in deaths from coronary heart disease. As a result, scientists are examining possible factors that may have been instrumental in lowering the death rate—particularly changes in dietary habits. They have been looking at these changes in terms of per capita consumption of dietary fat, fatty acids, and cholesterol.

The extent to which our changing national diet has affected our health is not known, but it is evident that changes in food consumption during this century have affected our dietary fat, fatty acid, and cholesterol intake.

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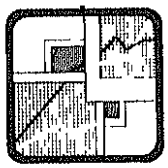
NFR National Food Review



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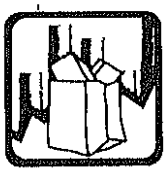

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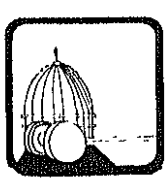
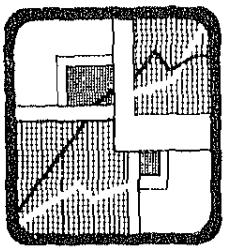


Legislation 66 Actions taken during the 95th Congress influenced both food policy and food program development. This section highlights the major Congressional actions dealing with food.



THE FOOD PRICE OUTLOOK FOR 1979★

J. B. Penn

Food prices are an important factor shaping the inflation psychology of consumers. They are also a critical element in the wage-price spiral now plaguing the economy. With the implementation of the President's anti-inflation program, the behavior of food prices in the year ahead will be of special interest.

As a part of that program, USDA is cooperating with the Council on Wage and Price Stability to jointly monitor price movements throughout the food system. Our ongoing monitoring activity has been intensified, and periodic reports of our findings will be issued.

Food Price Determinants

The challenge in food price forecasting is to predict the value of the Consumer Price Index (CPI). In deriving forecasts of this index, the USDA effort centers on price determinants in three broad areas:

- the farm production sector
- the food marketing system, and
- consumer purchase conditions.

Farm Commodity Prices. Even though raw farm commodities have, over time, become a smaller proportion of total food expenditures, conditions in the farm sector are still essential to evaluating the food price situation. The farmers' share of expenditures for domestically produced farm foods is now about 40 percent. For total food expenditures, it is much smaller (26 percent).

Commodity prices are largely determined by the quantities produced, both domestically and worldwide. The amount produced is, however, heavily influenced by the rather unpredictable forces of nature—weather, pest infestations, and plant and animal diseases. These occurrences are almost impossible to predict; yet, they are usually the source of food price forecast errors.

Last year was an excellent example. The major contributors to the larger-than-anticipated food price increases were red meat and fresh vegetable prices. In both cases, weather was the indirect, if not the direct, cause. Severe cold weather, for the second consecutive year, in the primary hog-producing States adversely affected the availability of pork. Early indications were for hog farrowings in December through February to be 13 percent higher than in the same period a year earlier. Farrowings were actually down 1 percent. Weather-induced disease, breeding, and other problems resulted in 1978 pork production being only 1 percent higher than in 1977. A 10-percent increase was originally forecast.

The weather-induced problems touched off a chain reaction in meat prices. Without the increased pork production, which had been expected to dampen the beef price increases, prices of both beef and poultry increased at a much more rapid rate than expected.

Then, following a prolonged drought, the rains came to California. Planting and harvest schedules for some vegetables, notably lettuce, were disrupted. Lettuce prices, usually in the $2.50 to $5.00 per crate range, rose to as much as $18.00 (300 percent). In addition, the cold weather early in the year affected the availability of some fruits causing their prices to rise unexpectedly.

★This article is based on remarks presented at the National Food and Agricultural Outlook Conference in Washington, D.C. on November 14, 1978.

In the aggregate, the approximate 15-percent increase in all farm commodity prices this year will contribute about 40 percent of the increase in 1978 food prices.

Marketing costs. The costs for marketing food are becoming increasingly important. In 1978, increased costs for domestically produced farm foods will be responsible for about one-half of the higher food costs.

The largest single component of the marketing bill is labor, accounting for 47 percsnt. By the end of the year, labor costs for 1978 will have increased 10 percent over the 1977 level.

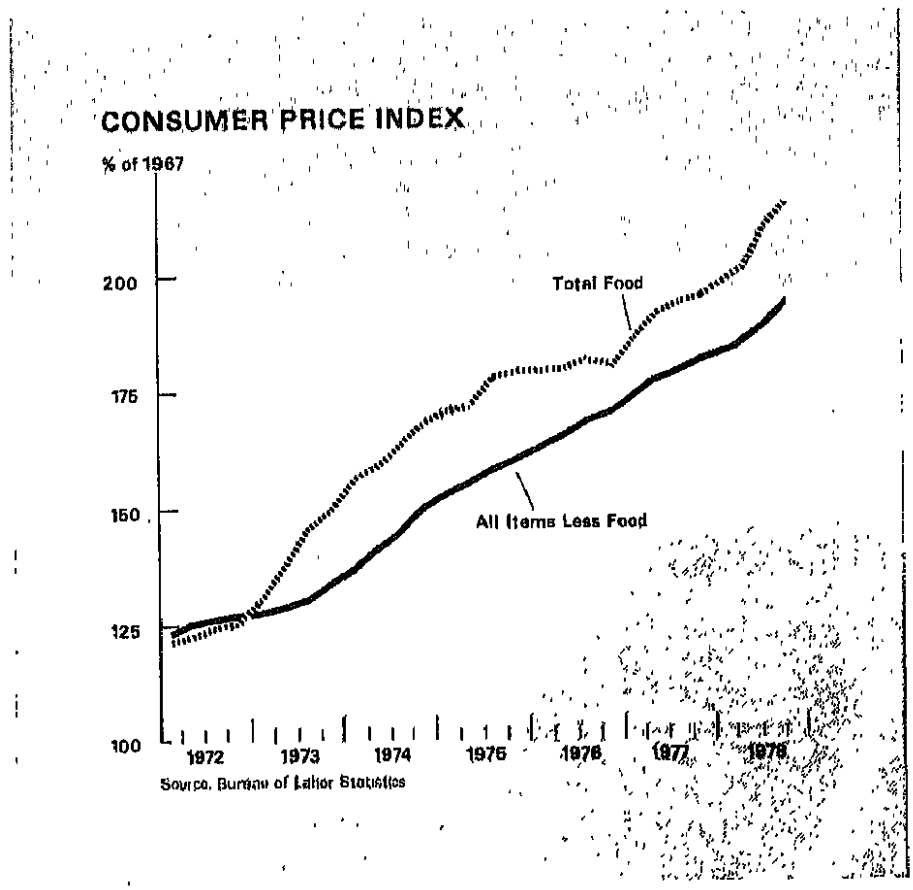
Food prices are also significantly influenced by energy-related input costs. Packaging and transportation costs—which account for about 21 percent of total marketing charges—reflect energy prices. Packaging costs this year will have increased about 6 percent, while transportation costs will be about 10 percent higher than in 1977.

Consumer Purchase Conditions. The influence of changing conditions for food demand are also of importance to food price determination from year to year. Rising incomes, reduced unemployment, and the increased population did influence food prices in 1978. But other, more subtle, changes are influential as well. There are more multiple-income families; family sizes are smaller; social mores and the role of women (and of men) are changing. These changes alter the kinds of foods purchased and the amount of associated services demanded by consumers.

The Food Price Outlook for 1979

Food price forecasting is a risky venture, owing primarily to the uncertainty associated with agricultural production. So, without employing extremely heroic assumptions or without constructing such wide ranges as to be meaningless, how do we develop a forecast for the year ahead?

One approach is to separate the major components of total food expenditures and examine



each as to expected price movements. The major components of food expenditures are: the value of farm commodities, the costs for marketing services, and the costs for foods without a domestic farm product base.

While the relative proportion of each component varies from year to year, recent weights are:

- the value of farm commodities—26 percent
- costs for marketing services—57 percent
- expenditures for "other" foods—17 percent.

The value of farm commodities can be highly volatile since production is determined by domestic and worldwide weather, policies of major trading nations, and other factors. Thus, the rate of change assumed for this category is really an assumption about production and total supplies, hence largely about the weather. Crucial to the 1979 food price situation will be developments in both poultry and pork production. As always, favorable weather will be important for abundant fruit and vegetable supplies.

The marketing services component is more directly affected by price changes (inflation) in the general economy than are the other two components. While prices and costs of the various categories such as labor, packaging, transportation, and energy will individually vary, increased costs for the marketing services will at least reflect the underlying rate of inflation.

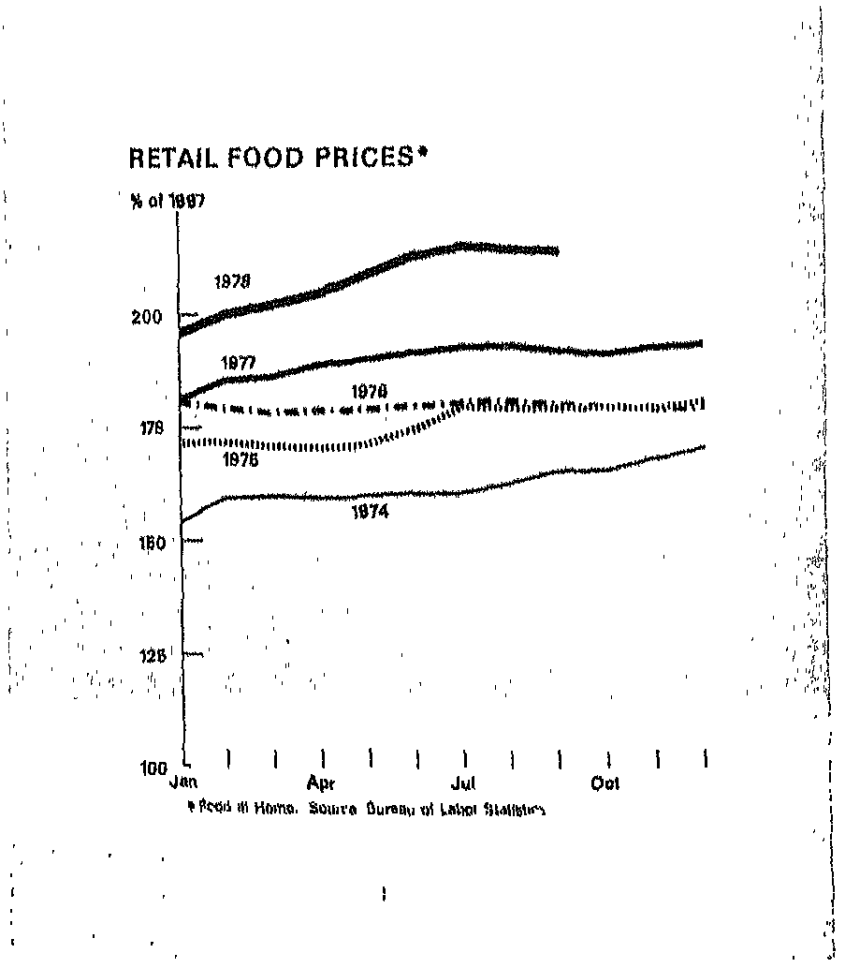
Price increases in the "other foods" category are generally determined by conditions outside the United States. These are primarily imported products and include such items as fish, coffee, bananas, and sugar. Their prices are highly volatile; since 1970, prices for these foods have risen more than 145 percent, compared to a 60-percent increase for domestically produced foods.

By making alternative assumptions about increased costs in each of these three broad areas, we can develop a range for our 1979 food price forecast.

- A conservative estimate of the increase in prices for all farm products next year is 5 percent. This alone would increase 1979 food prices by 1.3 percent over the 1978 level.
- If the inflation rate in the general economy should subside to a 6-percent annual rate, marketing costs would contribute another 3.4 percent to food price increases.
- If prices for the "other foods" category increase 8 percent, another 1.5 percent is added to 1979 food prices.

Thus, a *minimum* food price increase for next year would be 6 percent higher than in 1978. This forecast explicitly assumes a slowed rate of inflation, no weather adversities, and increased output of pork and broilers.

But what if we are not so fortunate? Suppose weather patterns next year repeat those of this



year. And, what if the inflation rate moves to 8 percent annually? We could view this as a "worst case" to establish an outer point on our range.

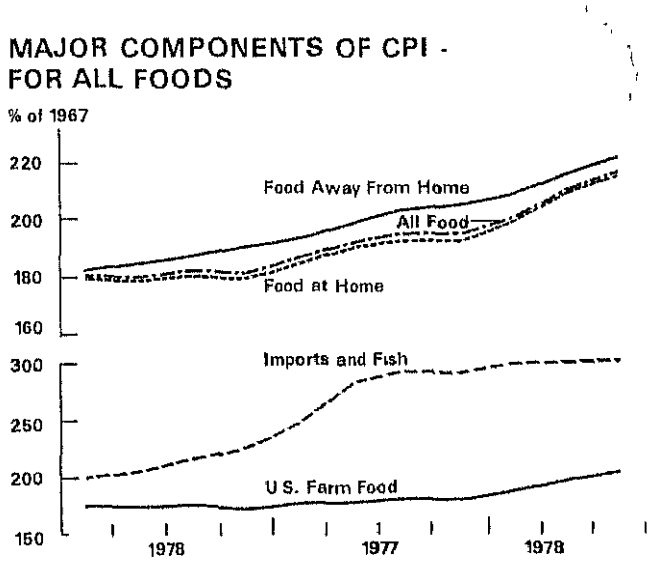
Considering that we are near the low point in the cattle cycle, it is not difficult to imagine a situation where farm product prices next year increase another 15 percent. Weather conditions this winter could again thwart efforts to increase pork production. Diseases and the lack of hatching eggs could continue to affect the expected broiler output. Adverse weather could again reduce fruit and vegetable supplies. In total, this could contribute 4 percent to higher food prices.

Overall inflation at an 8 percent or higher annual rate could, through higher marketing costs, add another 4½ percent.

Another 1.7 percent would be added by increased costs for foods without a domestic farm product base.

This set of circumstances would have food prices increasing 10 percent for the year—about the same as in 1978.

Having established this rather wide range—6 to 10 percent—can we be more specific about what can logically be expected from our vantage at this point in time? I think we can.



- Our analysis of the world and domestic agricultural supply-demand situation suggests that prices of all farm commodities will increase 7 percent next year, adding 2 percent to an overall food price increase.
- A review of the macroeconomy suggests the rate of increase in marketing costs next year will probably be about 7 percent, increasing food prices by 4 percent.
- Price increases for foreign foods, fish, and nonalcoholic beverages can be expected to add 1.5 percent to the increase.

Thus, looking over these three components for this current *most likely situation*, we would expect retail food prices to increase about 7½ percent next year (year over year). As is generally the case, price increases will be most evident during the first half of the year. During the third and fourth quarter, increases should moderate, and prices may even decline slightly.

Macroeconomic forces influence food prices on the demand side as well as the cost side. During the past 22 months, 3.9 million additional people have become employed. The unemployment rate has declined from 7.0 to 5.8 percent. But employment gains over the next 12 months may not keep pace with the recent gains. If the unemployment rate should increase next year and real growth substantially slow, the attendant reduced demand pressure could move food prices from the 7½ percent closer to the 6-percent forecast.

Marketing cost increases will primarily reflect increased costs for labor and transportation. Even with the

anti-inflation gaidelines, another 8-percent increase in labor costs can be expected for 1979. Scheduled minimum wage increases will be an influence. However, the exemption for workers earning less than $4 per hour is likely to be significant in the food industry. Packaging costs are expected to increase 6 percent, transpertation 8 percent, and the "other services" 6 percent.

Farm product prices in each major category are now expected to be higher than 1978 levels. At this time in the year, there is little alternative to assuming favorable weather for 1979 and the corresponding implied crop prodaction levels. Thus, even though prices for all commodities are expected to increase 7 percent next year (about half the increase of 1978), this is due primarily to livestock and not creps. Grain prices are expected to remain stable, exhibiting perhaps only slight increases.

The largest expected price increase for any commodity group is for livestock. Meat animal prices are expected to increase about 13 percent, reflecting the higher cattle prices. Expansion in poultry production will result in stable-to-slightly declining prices in the poultry and eggs category. Dairy product prices will again increase about 8 percent, similar to 1978.

Summary

I have indicated throughout these remarks the rather tenuous nature of food price forecasting. We cannot be certain about either crop or animal product production. To add to the uncertainty, we are faced this year with an atypical marketing cost situation. A great deal depends on the success of the President's anti-inflation program.

At this point in time, we believe that food prices in 1979 will be at least 6 percent higher than in 1978. Poor weather conditions and lower than expected pork and poultry output could push prices as much as 10 percent higher. Our "most likely" estimate is that food prices for the year will average 7½ percent higher than in 1978.

There is an old adage that "if you can't forecast well—forecast often." Food prices, as we have seen in 1978, are not easy to forecast with a great deal of accuracy. Unexpected events will no doubt alter the outlook I have just presented. It will, of course, be revised over the year to reflect the changing conditions. I invite you to watch for our unscheduled press releases that may be prompted by unforeseen events, for our monthly analyses published in *Agricultural Outlook* and for our quarterly assessments published in the *National Food Review*.

FOOD PRICE UPDATE

Retail food prices for the third quarter of 1978 continued the general upward movement noted earlier in the year. However, the increase from the second to third quarter was smaller than the gains for the first and second quarter. The unadjusted price index of food purchased for at-home consumption declined during the third quarter—providing evidence that prices may have stabilized during the last half of 1978.

The price index of food for at-home consumption reached 214.7 in July and fell slightly during August and September. Abundant supplies of broilers and modest increases in pork production helped to stabilize meat prices. Also, fresh vegetable supplies were more liberal and prices declined from their July peak. Nonalcoholic beverage prices also declined as lower coffee prices offset soft drink price increases.

Consumer demand was not as strong during the third quarter as the second quarter. Disposable personal income in current dollars increased at an annual rate of 9.1 percent during the third quarter compared with 12½ percent in the preceding quarter.

Nevertheless, the index for all food was 10.5 percent higher than the corresponding quarter a year ago. The food-at-home component was up 11.2 percent; food consumed away-from-home was up 9.3 percent.

The largest movement among major components of food-at-home was red meat prices. They are 20.5 percent above a year ago. Beef and veal prices showed the largest gain—28.8 percent. Other categories showing large increases are: Fresh fruits—28.5 percent, other meats—19.8 percent, fresh vegetables—17.3 percent, poultry—12.3 percent, sugar and sweeteners—12.4 percent.

FOOD OUTLOOK HIGHLIGHTS

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Red Meats

Retail beef prices in 1977 are expected to rise 10 to 14 percent above the 1978 level primarily in response to higher consumer incomes. Supplies of lean beef will be much lower than this year which could cause prices for hamburger and processed beef products to rise more than prices for choice beef cuts. Beef consumption next year likely will decline 4 to 7 pounds per person on a retail weight basis from the reduced level in 1978.

The cattle herd continues in its liquidation phase. The number of cattle and calves on farms January 1, 1979 is expected to total about 111 million head, a 16-percent reduction from the peak in 1975—the most dramatic decline on record. Beef production is decreasing as cattle numbers decline. Once the rebuilding begins, cattle will be withheld from processing to expand the herd, causing a further reduction in output.

The number of cattle being finished in feedlots is expected to increase in 1979; however, not enough to offset the decline in the slaughter of cows, steers, and heifers coming directly off grass. Average slaughter weights of cattle will rise as fed cattle accounts for a greater percentage of slaughter. Thus beef production may decline 4 to 6 percent while the number of cattle slaughtered drops 6 to 8 percent.

Less veal is likely to be available in 1979. The calf crop is declining as the cow herd is being reduced. Also, an expansion in cattle feeding will divert calves from slaughter. Lamb consumption in 1979 may hold near the 1978 level. Lamb and mutton production declined nearly 12 percent in 1978.

Per capita consumption of pork is expected to be slightly larger in 1979, up perhaps 1 to 4 pounds from the 1978 level, even though retail pork prices may rise above 1978 levels. The price increase could be in the range of 2 to 5 percent depending on the actual production of pork and competing meats. Even though hog production has apparently been profitable there has been little expansion in output. Higher costs of adding increased capacity, increased profitability of farm enterprises such as cash grain production, and other factors have limited increases.

Poultry

Chicken and turkey production is expected to expand significantly in 1979. Consumption may be 3 to 4 pounds per person higher than in 1978. Even with this increase in consumption, retail prices in 1979 are expected to average about the same as in 1978. Growth in consumer income and higher red meat prices will provide upward pressure for retail poultry prices. Prices are likely to be above a year ago during the first half but below for the last half.

Broiler and turkey production was profitable in 1978 even with the expansion in output. Record output was attained. A further expansion of output is expected for 1979. The basic breeding flocks for both broilers and turkeys are larger than a year ago.

Eggs

Eggs were one of the few food products exhibiting price declines in 1978. The lower price was due mainly to a 2-percent increase in output.

Retail prices were below 1977 through the summer but fall prices will be above the usually low levels of October-December 1977.

of the eggs produced will go for hatchery purposes and slightly less for table use on a per capita basis. Egg prices at retail in 1979 are expected to increase moderately over 1978.

Dairy

Retail prices for dairy products in 1979 are expected to show moderate gains similar to the 1978 increases. Consumption of dairy products will be slightly above 1978.

Higher consumer incomes and rising prices for other foods helped improve the demand for dairy products in 1978. Butter consumption was up about 5 percent in 1978, per capita cheese usage showed a 6-percent gain, snd fluid milk and cream consumption was about the same as the previous year.

Total milk production in 1978 was about one percent lower than in 1977. Domestic consumption of processed products was supported by declines in Government and industry stocks.

Milk production in 1979 is expected to be slightly higher than in 1978. While the number of milk cows will decline slightly, a sizeable increase in output per cow is expected.

Fish

In 1979, retail prices for seafood are likely to increase another 8 percent. High demand in 1978 prevented the buildup of inventories for some products, leaving smaller carryover stocks for 1979. likely to decline than increase from the record or near record levels reached in 1978. In addition, high demand for seafood in other countries will draw supplies away from the United States.

Contributing to the higher price of finfish and shellfish in 1978 were increased consumption of food away from home and increasing prices for competing meat products. A significant amount of fishery products is now consumed through restaurants and other institutional eating places.

Fruits

Retail prices for fruitsare expected to continue moderately above a year ago. Reduced availability of products and higher processing costs will add strength to the price picture.

The 1978-79 citrus crop is expected to be 3 percent less than last year. Slightly smaller crops have been forecast for grapefruit, oranges, and lemons. Only the tangerine crop is expected to be larger.

The 1978 noncitrus fruit crop was slightly smaller than the past 2 years. The apple crop was larger and offset declines for most other crops.

Processed fruit supplies are less than last year. A smaller orange crop has strengthened prices for frozen concentrated orange juice. The canned pack of most processed noncitrus fruit will be smaller. Supplies of most frozen fruits and berries are adequate. Dried fruit supplies, particularly raisins, will be down because of damaging rains in California during the drying season. percent from last season. Sharply smaller crops of almonds and walnuts and a substantially smaller pecan crop are responsible.

Vegetables

Higher prices for processed vegetables are in prospect for 1979. Total supplies of canned and frozen vegetables are expected to be adequate but somewhat lower than a year earlier.

The canned pea pack in 1978 was the smallest in years. Retail buyers will be shifting to corn and snap beans. The estimated tonnage of snap beans for canning and freezing is 9 percent larger than a year ago. Since carryover stocks are low, total supplies are only adequate for trade needs. Contracted tonnage of sweet corn is 4 percent larger than a year ago. However, the carryover from the previous season is smaller and total supplies—while adequate—will not match the utilization of last year.

Processsing tomato tonnage was down 14 percent in 1978. However, carryover stocks were considerably larger. Total supplies may only be slightly smaller than a year ago.

The United States' 1978 fall potato crop was a record—3 percent above 1977. Strong demand for processing potatoes, mainly frozen, will partly offset the price-reducing influence of the large crop.

The dry edible bean crop in the fall of 1978 was 14 percent more than the unusually small 1977 harvest. Average prices can be expected to remain below a year earlier unless some unusually strong export activity develops.

Fresh market vegetable prices to growers have averaged sharply higher due to the disrupted spring supply patterns for lettuce, celery, and a few other California vegetables early in 1978. These favorable grower prices should encourage increased production in 1979. A larger planned production should reduce the possibility of weather-related supply disruptions. Demand for fresh vegetables was exceptionally strong in 1978 and is likely to continue in 1979. On balance, a small increase in retail fresh vegetable prices is in prospect for 1979.

Food Fats and Oils

Retail prices of food fats and oils are expected to average moderately above year-ago levels throughout 1979. Edible fats and oil supplies will be slightly larger. Greater available supplies of soybean, sunflower, corn, and peanut oils, and imported palm oil are expected. However, supplies of competitive products like cottonseed oil, lard, and butter will be smaller. Exports this year are anticipated to be slightly less than a year ago so that the quantity of fats and oils available for domestic consumption will be ample. Higher processing and marketing costs will tend to support higher prices at retail.

Cereal and Bakery Products

Moderate price increases are anticipated for cereal and bakery products in 1979. The 1978 wheat crop was 12 percent less than the preceding year. Since stocks were slightly larger than a year ago, supplies will be 6 percent less than last year. Wheat prices received by farmers are expected to increase—a reflection of higher Government loan and target prices. Exports are expected to continue at about their 1978 levels.

Prices of other ingredients such as fats and oils, dairy products, and, sugars and sweeteners are expected to show increases. The costs of manufacturing and marketing cereal and bakery products are expected to rise.

Sugar

Retail sugar and sweetener prices are expected to increase moderately in 1979. A market price of 15 cents per pound on a raw value basis will be supported by appropriate Government actions. Wholesale and retail prices can be expected to increase as well, reflecting the 1.5-cent-per-pound increase in support prices.

World sugar supplies continue to be large. The world market price has been about 7 cents per pound during most of 1978. However, the domestic market is protected by the maximum weight duty of 2.8175 cents per pound and an additional import fee of 2.70 cents per pound. This price protection helps insure the economic viability of a domestic sugar industry.

A stable sugar usage rate would result in a decline in consumption of nearly 1 pound on a per capita basis in 1979. Total use in beverages could increase from the 1978 level if soft drink consumption resumes its upward trend. Another factor which could contribute to a slight increase in sugar use is the canned fruit pack. The pack probably will be larger than in 1978. However, higher sugar prices could stimulate use of high fructose corn syrup at the expense of sucrose in the fruit pack.

Beverages

Tropical beverage consumption in 1979 is expected to increase slightly from 1978. Coffee consumption, which declined in 1977 and increased slightly in 1978, could show another small gain in 1979.

During 1978, coffee prices have declined while soft drink prices rose. The overall beverage price increase in 1979 is expected to be small as world coffee supplies continue to be adequate at current price levels.

MEAT IMPORT UPDATE

In early June 1978, President Carter announced that an additional 200 million pounds of imported meat products would be allowed to enter this country. The action was taken, in part, to ease the upward pressure on retail meat prices which had developed through the first 5 months of the year. Administration officials said the action would help assure that adequate supplies of hamburger, hot dogs, and other processed meat products would be available for purchase while domestic producers rebuilt their herds.

The most recent estimate indicates that the action will reault in the increased importation of meat products. Calendar year 1978 imports of meat subject to the Meat Import Act are now estimated to be 1,429.3 million pounds—200 million pounds greater than the 1292.3 million pounds originally negotiated for 1978.

The Meat Import Act (Public Law 88-482) was enacted in August 1964. The Act provides that if yearly imports of certain meats—primarily beef and mutton—are projected to equal or exceed 110 percent of an adjusted base quantity (a 3-year moving average of domestic production), the President is required to either invoke or suspend a quota on the importation of these meats. Since implementation of the Act, voluntary restraint agreements with meat-exporting countries have been negotiated in 6 years. On three occasions (1972, 1973, and 1974), the quotas were suspended entirely, allowing imported meat to enter the country with no quantity restrictions. The quotas were actually imposed only once (1976).

The final estimate for 1978 will be made late in December. Imports of meat subject to P.L. 88-482, by month, are shown in tabular form.

MEAT IMPORTS SUBJECT TO PUBLIC LAW 88-482

Month	1975	1976	1977	1978
		Mil lb.		
January	135.5	117.6	92.8	79.2
February	97.5	92 2	97.8	100 3
March	106.0	147.4	107.0	150.8
April	86.1	94.7	103.2	132 6
May	75.8	104 4	102 9	140.9
June	100.9	120.0	91.5	105.7
July	104.3	87.5	91.4	105.2
August	112.8	82.3	133 8	104.9
September	114.6	109.6	117.1	
October	85.2	135.8	85.9	
November	121.7	106.6	107.7	
December	68.6	33.6	120.3	
Total[1]	1,208.9	1,231.7	1,250.2	

[1]Totals may not add due to rounding.

Source: U.S. Customs Service.

PER CAPITA FOOD CONSUMPTION

The per capita total food consumption index for 1978 is estimated to be the same as in 1977. However, this is 1 percent below the record level of 1976. The index of food from animal origins showed a 1-percent decline from 1977 to 1978, while foods from crop sources were also up 1 percent.

The decline in the consumption of animal products was due to a 4-percent decline in beef. Beef production and consumption is in a declining cyclical phase. Increased poultry, dairy, fish, and egg consumption—resulting from higher beef prices—was not sufficient to offset the decline in red meat. In addition, pork production did not respond to higher prices.

Gains in the consumption of crop products were recorded for vegetables, potatoes, cereals, and coffee. Consumption of sugar and fresh and processed fruits was below a year ago. A large apple crop to offset declines in citrus and other noncitrus fruit consumption.

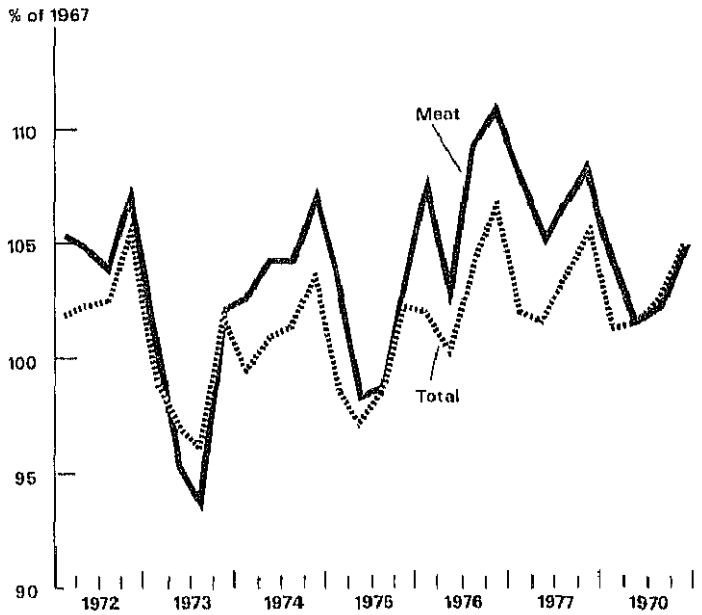
A small decline in total food consumption is in prospect for 1979. Reductions in animal producta, mainly beef, are larger than estimated increases

for crop products. Poultry consumption, both broilers and turkeys, is expected to show larger gains throughout the year as industry's capacity is expanded. Pork consumption is anticipated to rise after the first quarter of 1979 in response to higher hog prices. Dairy product consumption is expected to increase but a reduced table egg supply is in prospect.

The consumption of crop products is expected to show another increase next year. Total fruit consumption will show a small decline due to cutbacks in canned and chilled fruit juice, and dried fruits. Total vegetable consumption is anticipated to increase even though declines in frozen vegetables are in prospect. Potato consumption, both fresh and processed, is projected to increase because of the large 1978 fall crop. Dry bean consumption is anticipated to show gains as are cereals and coffee. Another decline in sugar consumption is in prospect.

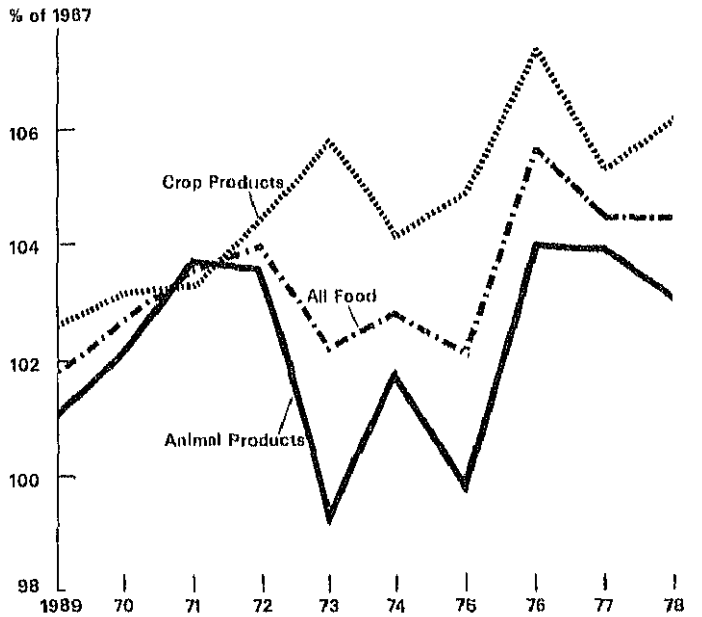
The index of per capita food consumption is probably the best economic measure of food consumed at the retail level. Pounds of foods consumed are combined with retail prices in a base period to measure changes in food consumption on an index basis. While the index primarily measures quantity changes, it also reflects shifts among foods of different economic values.

PER CAPITA CONSUMPTION OF LIVESTOCK PRODUCTS*



* Items Combined in Terms of 1957-59 Retail Prices
1978 Preliminary

PER CAPITA FOOD CONSUMPTION*



* Items Combined in Terms of 1957-59 Retail Prices
1978 Preliminary

FOOD POLICY CONTINUES TO EMERGE

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Food prices, food safety, human nutrition, and food aid are expected to be important public issues in 1979. These issues are consistent with the broader policy goal of assuring that an adequate, safe, wholesome, and nutritionally balanced food supply is available to all Americans.

The price of food is of primary concern to consumers. The rapid rise of retail food prices, averaging 1.4 percent per month in early 1978, outpaced average price rises of 0.8 percent for all items. By yearend, food price increases will still be greater than for prices generally.

Meat products are the largest single contributor to consumer food costs, they account for more than 32 percent of the overall food-at-home price index. A large feed grain harvest in 1978 will provide moderately priced feed for livestock and poultry production in 1979. The expected result is larger broiler supplies and a large potential increase in pork supplies. Beef prices are expected to increase again next year. Reduced supplies will again be the primary reason unless the breeding herd is reduced further than expected, which would lead to even tighter supplies later.

But commodity prices are only part of the food price picture. The remaining 60 percent of retail food costs are attributable to marketing—costs for processing and distribution. The Administration's wage and price guidelines may help hold marketing cost increases to lower levels then would otherwise be the case.

Together these factors point to smaller food price increases in 1979 unless unfavorable weather conditions reduce agricultural product production as happened in early 1978. The forecast is for food prices to average 7½ percent higher.

Food safety will continue to be an important policy issue in 1979. This is related to the broad goal of assuring a "safe" food supply. The scientific evidence linking food and feed additives to human health conditions is growing. As a result, proposals to ban or otherwise regulate the use of these chemicals will continue to emerge.

Food availability and food quality as they relate to human nutrition are also being addressed. Funding for nutrition research and education has increased. The impacts of these increases will be felt far beyond 1979. Nutrition education must now be provided for all participants in the growing Supplemental Food Program for Women, Infants and Children (WIC). A USDA mass media nutrition experiment is testing the effectiveness of television for nutrition education of children, and the National School Lunch Program provides day-to-day examples of nutritious meals. USDA is developing and testing guidelines that will help schools reduce the salt, sugar, and fat content in meals.

Another major food program change will be realized in 1979. The Food Stamp Program's purchase requirement is eliminated by the Food Stamp Act of 1977. After January 1, 1979, participants will no longer be required to purchase a portion of their stamp allotment. The value of coupons issued will be equal to what was formerly the "bonus," or difference between the amount paid by participants and the value of stamps received. Eliminating the purchase requirement gives participants more latitude in their food purchasing decision since they are no longer required to tie up income in stamps redeemable only for food. The result may be a decrease in food purchases of participants, but it has been estimated that participation will increase under new program rules. For example, estimates show that had the new program been in effect and fully implemented in July 1978, participation would have been about 19 percent higher. This would have occurred even though the number of eligible participants would have been cut to 27.3 million—an 11-percent decrease. The full impact of the new rules will not be felt immediately in 1979, as effects on participation will lag behind program rule changes.

FOOD SPENDING AND INCOME

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Continued economic growth and a reduction in the unemployment rate have helped maintain the demand for food in the face of higher food prices. However, the quarterly increase in food expenditures for the third quarter was less than half of that experienced in the second quarter. This is due in part to a reduction in the rate of food price increases. It may also be an indication that consumers shifted to lower priced food items.

Preliminary estimates indicate that Personal Consumption Expenditures for food were $241.8 billion (seasonally adjusted at annual rates), up 1.5 percent over the third quarter and nearly 11 percent above year-earlier totals. Spending for food at home totaled $179.4 billion (seasonally adjusted at annual rates) up 1.3 percent from the third quarter and again nearly 11 percent above year-earlier totals. Spending on restaurant meals and snacks rose at approximately the same rates.

Rising food prices are the major contributor to the overall increase in food expenditures. In recent months, the rising prices have been caused by reduced supplies, especially meat.

When food prices begin to rise, consumers generally do not reduce the quantity of food demanded in proportion to the rise in price. Therefore, the price rise is usually greater than the decline in foods purchased, so total expenditures increase. If incomes are also rising, consumers are able to pay the higher prices, thus escalating the price rise. Income rose at a quarterly rate of 2.3 percent in the first quarter of 1978 and 3.0 percent in the second quarter.

Meat is a major item in the consumer's budget—accounting for roughly 32 percent of all expenditures for food for home use. The higher prices caused by reduced supplies of meats and vegetables resulted in rising food expenditures—especially in the second quarter of 1978 when they were 4.0 percent above the first quarter.

However, after adjusting food expenditures for price increases, the quantity of food purchased for both home use and total use declined during the first two quarters of 1978.

This pattern was reversed during the third quarter as quantities purchased for use at home began to increase, indicating that consumers were making substitutions—such as pork and poultry in place of beef. As a result, consumers were able to purchase more food and food expenditures increased, but not as rapidly as in the previous two quarters.

Despite the third quarter upswing, quantities purchased for use at home remained below year-earlier levels. And the quantity of food purchased in restaurants declined. So the total quantity of foods purchased in the third quarter rose only slightly, and remained 0.3 percent below year-earlier levels.

Food expenditures in the near future will depend upon red meat prices, the availability of poultry and pork, and the movement in vegetable prices. If incomes continue to rise, demand for food—especially red meat—will remain strong.

QUARTERLY CHANGES IN PERSONAL EXPENDITURES AND DISPOSABLE PERSONAL INCOME

	1977	1978		
	IV	I	II	III[1]
Personal Consumption Expenditures	3.3	1.7	3.6	2.4
Durable Goods	5.5	-2.0	7.8	.7
Nondurable Goods	3.6	.9	3.8	2.0
Food	2.6	2.2	4.0	1.5
Other	4.4	.2	2.8	2.3
Services	2.4	3.6	2.4	3.3
Personal Disposable Income	3.1	2.3	3.0	2.2

[1]Preliminary.

Compared with a year ago, consumers were able to allocate more of their budget to automobiles, furniture, gasoline, and oil, and they made relatively large shifts in their expenditures towards services, especially tranaportation services and certain servicea necessary to maintain a household.

Consumers are spending 11 percent more on gas and electricity primarily becauae pricea have risen; they are spending 12 percent more to maintain their automobiles, again primarily due to the increased prices. In addition, consumers are spending 20 percent more on airline tickets. This increase is due to two factors: incomes have increased so that more of the budget is available for air travel; and the price of airline tickets has remained relatively stable and some have actually declined. Gasoline and oil prices have risen, making air travel more attractive to the consumer.

CHANGES IN FOOD EXPENDITURES THIRD QUARTER 1977 (SEASONALLY ADJUSTED)[1]

Item	From second quarter 1978	From third quarter 1977
	Percent	
Total food		
Current dollars . . .	1.5	10 8
1972 dollars	—	-.3
Food at home		
Current dollars . . .	1.3	10.8
1972 dollars	.3	-.8
Food away from home		
Current dollars . .	2.0	10.7
1972 dollars	-.6	1.1

[1]Preliminary.

DOMESTIC FOOD PROGRAMS

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Family Food Programs

Despite reductions in the unemployment rate, food atamp participation in the United States and District of Columbia haa been riaing steadily during calendar year 1978. Overall, participation is 2½ percent above what it was last year. The number of food atamp participants not receiving public assistance declined 1 percent from a year ago; however, the number of public assistance participants has risen over 5 percent.

At least part of the reason for the increases in participation is due to the cost-of-living increase in the allotment of stampa an eligible family may receive. Under current regulations, the level of income a family may receive and atill remain eligible is tied directly to the allotment of atampa. The allotment is adjusted twice each year to reflect changes in the cost of the Thrifty Food Plan. Persons are eligible to participate in the program if the coat of food in the Thrifty Food Plan exceeds 30 percent of family income. As the cost of the Thrifty Food Plan riaes (because of higher food pricea), the maximum income a family may earn and atill remain aligible also riaes. In January 1978, the maximum income a family of four could earn was $580 per month. In July, that maximum was increased to $607.

Because of the increases in the allotment of atampa, average bonus per person was nearly 10 percent above a year ago. The total value of bonus atampa iaaued during the third quarter of 1978 roae 10½ percent while the total value of actual cash outlay for the atampa declined 3 percent. Overall, the total value of atampa issued rose nearly 5 percent.

Naw Law To Taka Effact

The major provisions in the Food Stamp Act of 1977 containing revisiona in the Food Stamp Program will take effect January 1, 1979. They include the following:

1. Participants will no longer be required to purchase a portion of their atampa. Instead, they will receive only the value of the bonus coupons. A family of four with an income of $607, will receive about $24 in coupons. It is expected that most of those entering the program when this provision

takes effect will be the elderly poor and the working poor.

2. The cutoff level for net food stamp income will be set at the poverty level. This will reduce the maximum income a family may earn and still remain eligible for the program—thus tending to cut participation.
3. The "hardship deductions" will be replaced by a standard deduction of $60 plus a deduction of 20 percent of earned income. This will tend to eliminate some participants at the higher income levels by making it more difficult for middle income families to claim enough deductions to qualify. However, many working poor who did not have the necessary deductions may now become eligible as a result of the standard deduction and the exclusion of 20 percent of earned income.
4. The value of an automobile in excess of $4,500 will no longer be exempt from consideration in the assets limit unless it is used in the process of earning a living.

The impact upon food expenditures will be mixed. Previously, a family of four that paid $158 for a coupon allotment of $182 would be expected to spend the entire $182 on food. Under the new rules, they will be required to spend $24 on food—the value of the stamps received. However, a family of four with an income of $607 per month would tend to spend a relatively large portion of their income on food even in the absence of the program. The elimination of the purchase requirement might also induce more families to join the program.[1]

In an effort to improve the nutritional aspects of the program, starting January 1, 1979, only those stores with at least 50 percent of sales made up of such staples as fresh meat, poultry, fish, vegetables, fruit, and dairy products will be authorized to accept food stamps. The sale of hot foods in exchange for food stamps will be prohibited.

EDERAL COST OF USDA FOOD PROGRAMS (50 STATES AND STRICT OF COLUMBIA ONLY), 1975-1978

Item	1976	1976	1977	1977 III	1977 IV	1978 I	1978 II[1]	1978 III[1]
				Million dollars				
od stamps								
otal issued . . .	7,680	7,818	7,425	1,816	1,784	1,907	1,861	1,904
onus stamps[2]. .	4,602	4,657	4,373	1,069	1,037	1,168	1,133	1,182
od distribution[3]								
eedy families . .	11	8	11	3	2	3	3	2
chools[4]	364	448	628	88	136	203	182	66
ther[5]	33	33	49	11	11	28	17	23
ild nutrition[6]								
chool lunch . . .	1,340	1,605	1,646	197	525	547	486	1,179
chool breakfast.	94	118	147	20	49	52	47	172
pecial food[7] . .	116	240	236	132	32	36	57	131
pecial milk . . .	134	147	162	20	46	41	34	129
C[8]	106	182	281	71	81	89	98	108
otal[9].	6,800	7,337	7,422	1,612	1,921	2,167	2,057	2,992

reliminary. [2]Includes Food Certificate Program. [3]Cost of food delivered to State distribution centers. [4]Includes Special Food Services. [5]Includes supplemental food, Institutions, elderly persons. [6]Money donated for local purchase of food. Excludes nonfood istance. [7]Includes child-care and Summer Food Programs. [8]Special Supplemental od Program for Women, Infants, and Children begun January 1974. [9]Excludes those od stamps paid for by the recipient. Do not add to rounding.

Other Family Feeding Programs

Participation in the Needy Family Feeding Program rose from 80,000 in the third quarter of 1977 to 81,000 during the third quarter of 1978. However, the Federal cost of foods donated through this program declined 18 percent from a year ago. For the most part, this program has been replaced by the Food Stamp Program. Remaining operations are primarily located on Indian Reservations and in three counties in Washington State. However, the program does contain provisions for the distribution of commodities to areas hit by natural disaster.

[1]For further details on the expected *impacts of the regulation changes, see National Food Review*, NFR-1, January 1978, pp. 10 to 11.

Supplemental Food Programs

USDA has two programs targeted at pregnant and breast-feeding women, infants, and small children. They are the Commodity Supplemental Food Program and the Supplemental Food Program for Women, Infants and Children (WIC).

The Commodity Supplemental Food Program was originally designed to insure that mothers with infants received specific donated foods especially high in certain nutrients. Currently, approximately 104,000 persons in 12 States and the District of Columbia receive supplemental food under this program.

Participation in the WIC program is increasing—averaging 1.3 million during the third quarter of 1978—up 30 percent from a year earlier. But distribution of WIC program funds has been varied. As a result, the rules for funding WIC are undergoing revision. A tentative formula used in the first quarter of fiscal year 1979 (fourth quarter of calendar year 1978) was based on such factors as the number of children under 5 years of age at or below the 200-percent poverty level and the infant mortality rate. USDA is receiving public comments on this formula. These comments will be analyzed before a decision is reached on a final formula to distribute WIC program grants.

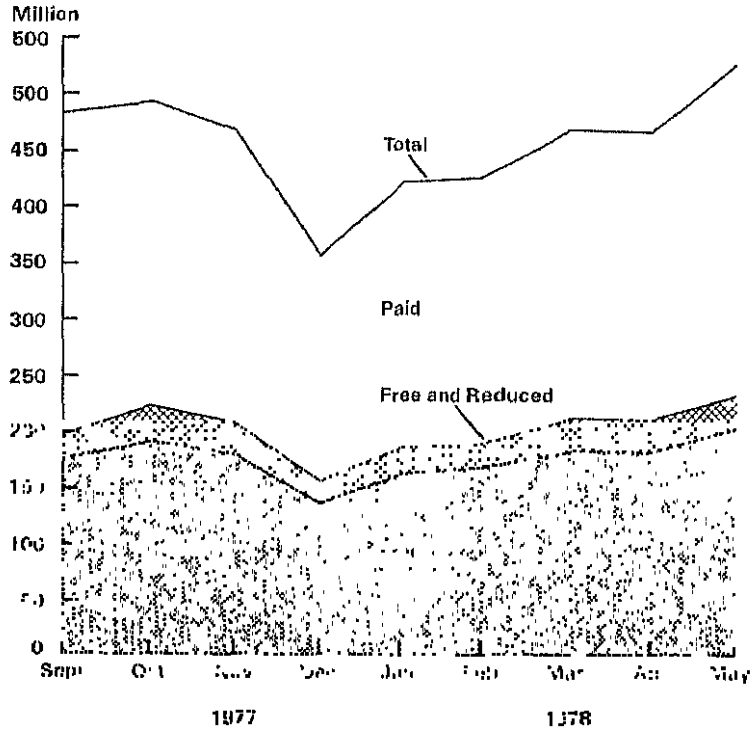
National School Lunch Program

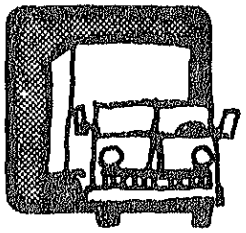
Participation in the National School Lunch Program averaged 1.1 percent greater in 1977/78 than in 1976/77 (September-May). This increase was parallel to a 1.1-percent increase in total lunches served. In the past 2 years, the overall movement has been from free to reduced price and paid lunches. As the 1978/79 school year progresses, the movement toward relatively fewer free lunches and more reduced price lunches may continue. The number of full-price lunches has increased slightly, relative to free lunches.

School Breakfast Program

The School Breakfast Program grew in 1977 and 1978. Participation from September 1977 to May 1978, increased at a rate 14.2 percent greater than in the same period in 1976/77. Preliminary estimates for July through September 1978 show an increase in participation of 25 percent above the same period a year earlier. As with the School Lunch Program, there was a small movement within the program toward relatively more reduced price and paid breakfasts. There was also a small decrease in the number of free breakfasts relative to the total.

NATIONAL SCHOOL LUNCH PROGRAM
LUNCHES SERVED
SEPT. 1977 – MAY 1978





Marketing

CONSUMERS AND WAREHOUSE STORES

Anthony E. Gallo and Charles Handy (202) 447-8707

Two experimental developments in food retailing, generic labeling and warehouse stores, have recently focused attention on shifts in consumer retailing preferences and the changing food merchandising industry. In the September 1978 *National Food Review*, the role of generic products was analyzed. These products emphasize low price and are repositioning the private label brand. In this issue, we consider the recently enhanced role of warehouse stores in the food retailing system.

Warehouse stores, quite unlike conventional supermarkets, vary greatly in the type of service and range of products offered. They commonly operate on the principle of minimizing operating costs by offering spartan convenience. In return, consumers pay lower prices for the foods they buy. There are two basic types of warehouse stores:

General warehouse stores tend to be nearly as large as conventional supermarkets and carry about 3,000 to 5,000 items compared with about 8,000 for a conventional supermarket. Warehouse stores generally carry only a limited selection of produce items and usually do not carry fresh meat.

Box stores, on the other hand, are much smaller than supermarkets, generally carrying only about 500 fast-moving grocery items. They are usually about 7,000 square feet in size. Typically they sell no produce, meat, or items requiring refrigeration. These stores are not meant to serve the shopper's total food needs. They are often deliberately located nearby conventional supermarkets.

Although the current experimentation with warehouse stores is still in its early stages, it is a significant development in terms of consumer food buying. For the first time since the rapid growth of supermarkets, there is an overt institutional attempt to provide a low-cost alternative for food shoppers.

Rising incomes, changes in life styles, higher participation of women in the labor force, and changes in demography caused a rapid growth in conventional services offered by supermarkets. But offering these services also increased store construction and operating costs and thus retail prices. Now, alternatives are being offered, taking advantage of the high cost structure built into conventional supermarkets.

A larger segment of consumers are placing more emphasis on price and value than on convenience. By paring services and offering a limited assortment of fast-moving items, warehouse stores cut margins and prices significantly below those found in most supermarkets.

Scope of Warehouse Stores

It is estimated that there are about 500 warehouse stores in the United States; two-thirds are general warehouse stores and a third are limited assortment. Although they account for an insignificant portion of total retail food outlets, their number is increasing rapidly.

Sales data are not available, but estimates from private sources indicate that sales are between 1 and 1½ billion dollars, comprising about 1 percent of total grocery store sales in the United States.

Holding Down Food Costs

Although warehouse stores differ drastically in convenience and product price they have in common, to a varying degree, the following characteristics:

- A limited selection of foods offered,
- Items sold directly from the container,
- A sparse atmosphere—no fancy fixtures or flooring,
- Perishables are limited or nonexistent,
- Goods are not individually price marked (where permitted by law),
- There are no shopping bags, consumers supply their own.

Consumer interest in warehouse stores appears rooted in food price inflation. Retail food prices rose at a yearly computed growth rate of about 9½ percent between 1972 and 1977. During the past 5 years, the Consumer Price Index (CPI) for food at home has risen at about the same yearly increase as disposable income, which contrasts to the previous 5-year span when prices for food at home rose at about half the pace of disposable income. Although nonfood prices have also risen, the increase has been slower than for food price. Given the more frequent occurrence of food purchase, food price increases tend to be more noticeable.

Economies of scale in food purchasing may also be an important factor contributing to the increased consumer interest in warehouse stores—especially for large families. The cost of feeding each family member declines because of greater efficiency in bulk food purchase and preparation. Recent data indicate that food expenditures per person for large families are less than half of those for single-person households. Large families spend considerably less per person on away-from-home eating (less than a fourth than the one-person family), but also spend much less per person on at-home food purchases. Purchasing in bulk at discount prices helps hold down these costs even more.

However, the potential of warehouse stores for holding down total food costs is limited by two factors. First, is the lack of perishable items. Second, is the willingness of consumers to forego convenience for price.

Perishables and refrigerated products account for about 60 percent of the food-at-home market basket. Since these products are generally unavailable or available only to a limited degree in warehouse stores, the role of such stores in holding down total food costs is limited.

However, convenience may be an even more important factor in limiting the use of warehouse stores. Almost 40 percent of consumers in a recent USDA sample placed satisfaction and convenience as their first priority in food store selection. Since warehouse stores are open fewer hours, offer fewer commodities, and offer less service, this segment of the market will likely continue to shop primarily in conventional supermarkets.

TYPICAL FORMATS OF DIFFERENT RETAIL FOOD ESTABLISHMENTS

	Warehouse Store	Limited Assortment	Conventional Supermarket
	Percent		
Gross Margin	12.0	12-13	17.3
Payroll	4-6	3.0	8.9
Other Expenses	6.0	4.7	7 3
Total Expense	10.5	7.7	16.2
Pretax Profit	1.5-2.5	1 8	1 1
	dollars		
New Store Size (sq ft.)	15,000-25,000	7,500	30,000
Items Stocked	2000-5000	600	8,000

Source: Derived from Gerke Economics, Data in Chain Store Age, Supermarketing Magazine, and Progressive Grocer

Why Warehouse Stores?

Several demographic and marketing changes have contributed to the recent development of warehouse stores as an alternative to the supermarket. While expenditures in the food-at-home market have risen over the past decade, most of the gain in the total food dollar has gone to food eaten away from home. In 1960, food purchased for preparation at home accounted for about three-fourths of total food purchases. By 1977, less than two-thirds of all food expenditures were accounted for by these purchases. Purchases in the food-away-from-home market rose from about a fourth to over a third of the total. Moreover, increases in the population rate have subsided in recent years, and the rate is expected to diminish even further over the next few decades.

Changes in the cost structure of the food retailing industry, however, appear to be playing an even greater role in the development of warehouse stores. Labor costs, which have been rising each year, constitute about 9 percent of total operating costs, while energy, land and rent, and advertising costs have also risen sharply. In addition, product proliferation, offering only marginal product differentiation, has also raised space costs.

Operating costs for warehouse and limited assortment stores differ from the costs for a conventional supermarket. Gross margins are about 12-13 percent for the warehouse store compared with about 20-21 percent for the conventional supermarket. Because gross margins are lower, volume sales are quite important to warehouse stores.

Payroll costs are considerably lower, reflecting not only shorter hours, but in many instances the use of part-time and nonunion labor. Since the customer does his own bagging, marking (where permitted by law), and carryout, much of the labor cost is shifted to the consumer.

Nonpayroll expenses are also lower, but the differential is less than for payroll expenses. Advertising expenses are considerably lower, since the basic warehouse store relies largely on word-of-mouth. Merchandising tools such as trading stamps and games of chance are essentially nonexistent in warehouse stores. Since perishables are limited and store hours are shorter, energy costs are also kept to a minimum. In addition, smaller store size and more efficient use of space also help hold down costs.

PERISHABLE AND NONPERISHABLE FOODS IN RELATION TO THE FOOD-AT-HOME DOLLAR

		Total Food-at-Home Expenditures (Percent)
Perishables		
Beef	179.71	16.6
Pork	101.87	8.8
Other meats	44.92	3.8
Poultry	53.90	4.7
Fish	31.97	2.7
Eggs	28.12	2.4
Milk	94.67	8.2
Dairy	64.72	5.4
Fresh fruits	44 46	3.9
Fresh vegetables	50.24	4.4
Total Perishable	534.58	59.8
Nonperishables		
Cereal products	34.56	3.0
Bakery	103.68	9.0
Processed fruits	35.09	3.0
Processed vegetables	38.50	3.3
Sugar and sweets	34.72	3.0
Nonalcoholic beverages	87.73	7.6
Fats and oils	30.70	2.7
Prepared foods	95.69	8.2
Total nonperishable.	619.96	39.8
Total Food-at-Home Expenditures	1,164.54	100

Source: 1972-74 Consumer Expenditures Survey.

Warehouse Stores as a Viable Alternative

Warehouse stores apparently represent a viable alternative to consumers who are willing to trade convenience for price. It is unlikely that such stores will replace the more traditional supermarket. Warehouse stores are primarily designed for cost-conscious consumers. Presently they take only a small portion of the consumers' total food marketing bill and they require a relatively large tradeoff of convenience for price. Much of the apparent willingness to trade off convenience for price will be influenced by trends in family size, the rate of food price inflation, and the level of employment and income.

TOTAL FOOD EXPENDITURES: SOME FURTHER DELINEATIONS

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In the April 1978 issue of the *National Food Review*, a new time series of total food expenditures (TFE) was reported for the first time. As noted then, the new series is more inclusive than either the Personal Consumption Expenditure (PCE) series published by the Department of Commerce or the domestic farm food expenditure series of the USDA.

The expenditures reported in the PCE include only personal consumption expenditures and thereby exclude furnished meals (except those furnished to employees) and most business meals. The USDA marketing bill reports only the expenditures for U.S. farm-produced foods. Imported foods, seafood, and other foods without a farm product base are excluded. With those omissions, neither series really answers the question of what was the total food expenditure in any given year.

The complete USDA TFE data series includes about 125 expenditure categories and identities. In the April report, however, only data for the major components of the TFE series were published. This article provides a further delineation of that series. The categories reported here are for expenditures on food for off-premise use and expenditures for meals and snacks. Together, these two major categories sum to the total value of expenditures on food.[1]

Food Sales Breakdowns

Retail food stores have historically accounted for the largest share of all expenditures on food for off-premise use. In 1954, retail food stores accounted for 75 percent of food expenditures for off-premise use. This share had grown to 87 percent in 1977, or $124 billion of the $143 billion spent for all food (sales plus nonsales). This is the only food sales category to show a marked increase over time. This increase reflects the expansion and diversification of supermarkets and food chains.

The only other grouping to register a significant shift in its share of off-premise expenditures is the home delivery category. From a high of 8 percent in 1954, home delivery sales dropped to only 1.4 percent of food-at-home sales in 1977. The gradual decline, averaging over 4 percent per year during the past 24 years, reflects one of many changes in food-buying behavior which has occurred as our society has become more mobile.

Expenditures on Meals and Snacks

There have been two major shifts in the share of expenditures accounted for by the meals and snacks categories. Eating and drinking places have gradually increased their share of all expenditures on meals and snacks from 55 to 67 percent. Conversely, the percentage of expenditures accounted for by furnished meals declined from 18 percent to less than 9 percent. Again, both changes suggest that increased mobility and increased incomes have led to a relatively larger share of expenditures being directed to dining away from home.

The data presented here provide more detailed information about total food expenditures than has previously been published. While the breakdowns presented are still highly aggregated, it is a further step to providing a consistent, all-inclusive time series of food expenditures.

EXPENDITURES FOR MEALS AND SNACKS, 1954-77

Year	Eating and drinking places[1]	Hotels and motels[1]	Retail stores, direct selling[2]	Recreational places[3]	Schools and colleges[4]	All other[5]	Total
			Million dollars				
1954	8,008	752	1,428	268	1,073	3,345	14,874
1955	8,490	809	1,466	306	1,219	3,197	15,501
1956	8,992	875	1,544	345	1,410	2,154	16,320
1957	9,409	932	1,602	332	1,554	3,260	17,089
1958	9,447	922	1,607	345	1,697	3,398	17,416
1959	10,102	962	1,684	373	1,888	3,348	18,372
1960	10,505	1,028	1,720	409	2,021	3,425	19,168
1961	10,907	1,061	1,743	440	2,199	3,546	19,896
1962	11,624	1,134	1,813	460	2,396	3,649	21,070
1963	12,247	1,200	1,854	471	2,547	3,701	22,020
1964	13,156	1,289	1,988	481	2,737	3,818	23,469
1965	14,444	1,409	2,162	565	2,988	4,040	25,508
1966	15,768	1,541	2,346	524	3,202	4,618	28,059
1967	16,584	1,623	2,436	541	3,558	4,873	29,625
1968	18,589	1,699	2,709	691	3,842	5,041	32,471
1969	20,092	1,708	2,972	633	4,206	5,413	35,024
1970	22,496	1,661	3,307	688	4,435	5,562	38,369
1971	24,059	2,051	3,601	724	4,962	5,546	40,953
1972	26,278	2,355	3,889	784	5,305	6,758	44,429
1973	29,524	2,573	4,278	880	6,620	6,432	49,297
1974	33,372	2,776	4,640	1,022	6,336	7,429	55,575
1975	38,371	3,070	4,877	1,103	7,108	8,098	62,627
1976	43,827	3,676	6,207	1,233	7,903	8,521	70,267
1977[6]	48,721	3,880	6,576	1,420	8,391	9,302	77,290

[1]Including tips. [2]Including vending machine operators but not vending machines operated by other organizations [3]Including motion picture theaters, bowling alleys, pool parlors, sports arenas, camps, amusement parks, golf and country clubs. [4]Includes school food subsidies. [5]Including military exchanges and clubs, railroad dining cars, airline food service, food service in manufacturing plants, institutions, hospitals, boarding houses, fraternities and sororities, civic and social organizations, food supplied military forces and civilian employees. [6]Preliminary.

EXPENDITURES FOR FOOD FOR OFF-PREMISE USE, 1954-77

Year	Food stores[1]	Other stores[2]	Home delivered[3]	Military outlets[4]	Farmers, manufacturers, wholesalers	Total sales	Nonsales[5]	Total
				Million dollars				
1954	33,140	2,235	3,061	311	1,636	40,689	3,693	44,382
1955	34,266	2,314	3,506	338	1,647	41,971	3,661	46,622
1956	35,795	2,322	3,491	365	1,653	43,626	3,632	47,153
1957	38,610	2,629	3,482	694	1,681	46,396	3,666	50,066
1958	40,348	2,516	3,460	423	1,577	48,113	3,820	51,933
1959	40,612	2,332	3,342	506	1,685	48,678	3,621	52,197
1960	42,088	2,232	3,279	665	1,642	49,805	3,536	53,592
1961	42,710	2,179	3,108	631	1,662	50,280	3,556	53,866
1962	43,689	2,265	2,945	712	1,698	51,299	3,675	54,874
1963	44,104	2,247	2,790	796	1,726	51,663	3,542	55,205
1964	46,415	2,267	2,663	849	1,746	53,930	3,574	57,509
1965	49,076	2,294	2,694	972	1,767	56,803	3,053	60,466
1966	61,446	2,351	2,690	1,087	1,853	59,327	3,761	63,088
1967	61,709	2,125	2,662	1,193	1,793	69,382	3,637	63,020
1968	66,373	2,260	2,614	1,239	1,868	53,244	3,647	67,091
1969	59,932	2,296	2,630	1,326	1,957	88,039	4,186	72,226
1970	86,160	2,571	2,467	1,424	2,073	74,485	4,591	79,076
1971	70,120	2,482	2,348	1,669	2,087	78,606	4,865	83,416
1972	73,393	2,698	2,248	1,740	2,133	82,110	6,079	87,184
1973	83,396	2,776	2,186	1,987	2,523	92,848	6,009	98,857
1974	95,918	2,936	2,276	2,276	2,614	106,022	6,717	112,739
1975	107,302	3,102	2,199	2,604	2,750	117,957	7,143	126,105
1976	114,070	3,306	2,117	2,607	2,959	126,069	7,640	132,699
1977[6]	123,909	3,638	1,976	2,816	3,101	136,239	8,325	143,664

[1]Excludes estimated sales to restaurants and institutions. [2]Includes eating and drinking places, and trailer parks. [3]Includes mail order. [4]Commissary stores and exchanges. [5]USDA donations to families and home production (farm and nonfarm). [6]Preliminary.

EXPENDITURES FOR FOOD AND ALCOHOLIC BEVERAGES, 1954–77

Year	Food and off-premise use			Meals and snacks			All food	Alcoholic beverages		
	Sales	Nonsales	Total	Sales	Nonsales	Total		Packaged	Drinks	Total
	Million dollars									
1954	40,689	3,693	44,382	11,908	2,966	14,874	59,256	5,254	4,688	9,942
1955	41,971	3,651	45,622	12,682	2,819	15,501	61,123	5,483	4,803	10,286
1956	43,526	3,632	47,153	13,505	2,815	16,320	63,478	5,965	5,025	10,990
1957	46,396	3,669	50,065	14,172	2,917	17,089	61,154	6,376	5,156	11,532
1958	48,113	3,820	51,933	14,360	3,056	17,415	69,349	6,658	5,217	11,875
1959	48,576	3,621	52,197	15,365	3,012	18,377	70,574	7,046	5,370	12,416
1960	49,806	3,536	53,592	16,084	3,084	19,168	72,560	7,207	5,452	12,659
1961	50,280	3,556	53,866	16,692	3,204	19,896	73,762	7,175	5,512	12,687
1962	51,299	3,576	54,874	17,756	3,320	21,076	75,950	7,674	5,664	13,338
1963	51,663	3,542	55,205	18,646	3,374	22,028	77,225	7,984	5,842	13,826
1964	53,930	3,574	57,504	19,957	3,512	23,449	80,973	8,472	6,048	14,520
1965	56,803	3,653	60,456	21,899	3,649	25,548	86,004	8,963	6,326	15,289
1966	59,327	3,761	63,088	23,907	4,152	28,059	91,147	9,656	6,710	16,366
1967	59,382	3,617	63,020	25,274	4,351	29,625	92,645	10,119	6,728	17,057
1968	63,244	3,547	67,051	27,909	4,562	32,471	99,562	10,942	7,443	18,385
1969	68,039	4,186	72,225	30,108	4,916	36,024	107,249	11,680	7,769	19,449
1970	74,485	4,591	79,076	33,251	5,118	38,369	117,445	12,818	8,654	21,472
1971	78,606	4,865	83,415	35,433	5,621	40,953	124,368	13,955	9,156	23,111
1972	82,110	5,079	87,189	38,505	5,924	44,429	131,618	15,026	9,656	24,682
1973	92,848	6,009	98,857	42,688	6,689	49,297	148,154	16,166	10,464	26,630
1974	106,022	6,717	112,739	47,594	7,981	55,575	168,314	17,763	11,315	29,138
1975	117,957	7,143	125,105	53,702	8,925	63,627	187,732	19,361	12,628	31,979
1976	125,059	7,640	132,699	60,546	9,721	70,267	202,966	20,864	14,005	34,869
1977[1]	135,239	8,325	143,564	66,696	10,594	77,290	220,854	21,468	15,056	37,024

[1]Preliminary.

PICK YOUR OWN AND ROADSIDE STANDS: WHO'S BUYING AND WHY?

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Direct marketing involves any commerical activity where the producer sells directly to the consumer. This face-to-face marketing is, of course, not new. But a number of factors have recently converged to encourage additional "direct" sales.

One of these factors is the Farmer-to-Consumer Direct Marketing Act (Public Law 94-463). This law was enacted in October 1976, and made direct marketing an officially recognized program. Appropriations of $500,000 for 1977 and $1.5 million for 1978 were made available to the States to develop and expand direct marketing through educational and service projects.

The Farmer-to-Consumer Direct Marketing Act and subsequent proposed amendments to it are a reaction to what some feel are imbalances in the present marketing system, and to the social inequities generated by the structural/organizational changes that have occurred in the food system in the past two decades. These imbalances relate primarily to the increasing share of food expenditures that pay for food marketing costs. Increased labor and energy costs in recent years have helped to widen the marketing margin.

The structural/organizational changes relate to the growth of conglomerate firms in parts of the food industry, and the emergence of the large corporate commercial farms suited to volume production. As a result, there has been a concern about market access and equitable incomes for the small producer.

Direct marketing outlets can take several forms. The most familiar are: pick-your-own; farm or roadside stands; roadside/curbside stands in town; farmers' markets where food products are sold from trucks or stalls; and home delivery or truck selling house-to-house.

In the winter of 1978, ESCS conducted a national probability survey of 1,350 food shoppers to assess the interest in using various food outlets, including direct marketing outlets, and to assess the importance of these outlets in consumer purchases of selected commodities.

This article describes the clientele of, and purchases from, pick-your-own operations and roadside stands in the country. These two outlets probably represent, the "purest" forms of direct marketing—selling foodstuffs directly from producer to consumer without any intermediaries. The other outlets investigated in the survey more likely, although not necessarily involve intervening farm-to-consumer transactions such as merchants buying from wholesale outlets or farmers, then reselling to consumers.

Pick-Your-Own (PYO)

It is estimated that there were slightly over 3,000 pick-your-own operations in existence in 1976. This estimate does not include information from all States nor does it include "clean-up" activities at the end of harvesting.

Approximately 18 percent of the surveyed households patronized this kind of outlet in 1977. Generally, the proportion of households making purchases from this kind of outlet was positively related to household size, presence of children, and income. Households that maintained a garden in recent years were more likely to frequent a PYO than were households that did not have a garden. It may be that such households are more appreciative of fresh produce obtainable at such outlets. In addition, frequenting PYOs, along with gardening, may reflect a lifestyle for these households that places emphasis on "getting back to nature."

Attaining a better quality product—fresher, better taste, better appearance—and saving money were the two attributes cited most often by the clientele of PYOs. Also, about one-fifth of the shoppers in these households considered using PYOs an enjoyable outing. In view of the demographics associated with frequenting this type of outlet—larger households, and those with children—PYOs undoubtedly serve as a form of recreation for many of these households. A majority of the PYO customers (59 percent)

indicated no problems or inconveniences associated with such outlets. The most frequently mentioned inconvenience (cited by one-fifth of the customers) was traveling to and from such sites.

Country Roadside Stands

Approximately 9,000 roadside stands were estimated to exist in 1976. These operations may consist of temporary or permanent structures that are presumably owned by the producer of the foodstuffs sold.

About 38 percent of the respondents surveyed indicated that they purchased food at a farm or roadside stand in the country. The proportion of respondents buying from such an outlet increased positively with respondents' education, size of household, and income. Again, as with the PYO, households frequenting a country roadside stand were more likely to have had a garden in recent years. Incidence of purchases at these sites was more evident in the Northeast region of the country, reflecting perhaps a predominance of roadside stands in this geographic area.

Better quality food and lower prices were cited most often as the advantages to shopping at this kind of outlet. Most of the roadside stand users (62 percent) cited no specific disadvantage, while a relatively small number of users (17 percent) indicated that traveling to and from this kind of outlet was an inconvenience.

Commodities Purchased

Close to half of the respondents surveyed (43 percent) claimed to have purchased food products at either a PYO or country roadside stand.

As might be expected, fresh fruit and fresh vegetables were the commodities purchased most often. About 36 percent purchased fresh fruit and approximately 29 percent purchased fresh vegetables at either of these two outlets. The relatively large spread between the prices that farmers receive and consumers pay in retail stores for these products make direct marketing beneficial to both farmers and consumers. In addition, these outlets provide an opportunity for access to consumers which otherwise would probably not exist for small producers.

Eggs were reportedly purchased at either a PYO or country stand by about 8 percent of the respondents, and beef was bought at one or the other of these two kinds of outlets by approximately 3 percent. The other selected commodities were purchased by less than 1 percent of the respondents at either one of these two operations.

To get some idea as to quantity purchased, respondents were asked to estimate the percentage of a specific food they purchased at each outlet. Food shoppers, on the average, estimated that only about 7 percent of their total fresh fruit purchase and about 6 percent of their total fresh vegetable purchase were done at either a PYO or roadside stand. Approximately 80 percent of food shoppers' total purchase of these two commodities was estimated to have taken place at a supermarket or grocery store. About 5 percent of food shoppers' total egg purchase and 2 percent of their total beef purchase was estimated to have been bought at these two outlets. Less than 1 percent of the total purchase for each of the other commodities was estimated to have taken place at these sites. Obviously, consumers in 1976 perceived that a relatively small proportion of their food purchases took place at these outlets.

Future Purchases

All respondents were asked to indicate whether they expected to buy food from each of these two outlets within the next year. About 24 percent of the food shoppers said they planned to patronize a PYO. This represents a slight increase from that proportion (18 percent) who said they were already buying from this outlet. About 39 percent of the respondents stated they intended to buy from a country roadside stand. This compares with 38 percent already indicating they had been making purchases at this type of outlet. Respondents intending to buy from a specific outlet were largely the same respondents who had already been making purchases at that outlet. This is also evident from the similarity of the demographic information (education, income, etc.) between "actual purchasers" and "intended purchasers."

Conclusions

The Farmer-to-Consumer Direct Marketing Act was designed to support and

of this Act in terms of its contribution toward encouraging more consumers to purchase at these types of outlets.

It is apparent from this survey that consumers who have actually purchased foodstuffs from PYOs and roadside stands are satisfied with these operations. However, the actual or perceived benefits attributed to these outlets—better quality food and lower prices—may not be sufficient to increase the incidence of purchasers at these outlets much beyond the "core" of consumers who are currently doing so. For some consumers, there may be too much of an effort involved in patronizing these outlets. In the case of PYOs, there is the actual harvesting to be done by the purchasers. For both PYOs and roadside stands, there may be relatively long distances involved to get to these sites for a number of consumers. This travel problem, as mentioned previously, was the reason cited most often by those respondents who indicated they would not buy at any direct marketing outlet in the immediate future.

It remains to be seen if promotional efforts emphasizing access to fresher, better quality foods at lower prices will be sufficient to persuade more consumers to purchase at these sites. Furthermore, it is indeterminable at this time, whether societal phenomena (a back-to-nature orientation, nostalgia, etc.) will demonstratively affect purchasing at these outlets over the long term.

FOOD PROCESSING★

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A great deal of structural change has taken place in the food processing sector during the last 30 years. A recent study of 25 large food processing firms showed that the proportion of company sales outside the two principal industries of each firm more than doubled from 1950 to 1971. These changed conditions raise questions about performance and the need for public policies.

Public policies toward conglomerate firms depend largely on which incentives are believed to be encouraging conglomeration.[1] There appear to be three basic sets of motivations: increased growth, greater profitability, and reduced risk from changes in demand.

Growth, primarily via the merger route, is a complement to the more basic objective of higher profits. Improved performance from conglomerate growth could come from two different sources: greater firm efficiency, both in a static as well as dynamic sense, and the expansion or retention of market power. At the present time there is little empirical evidence to indicate which is the more important incentive. However, a study by Leonard Weiss provides some evidence that mergers may not result in increased firm efficiency. There is ample case study evidence of some firms holding considerable conglomerate market power. Increasingly there are those who feel it would be in the public interest to take steps to control the market power of those conglomerate firms that already exist and to remove the socially undesirable incentives encouraging conglomerate mergers.

Policy Alternatives

Suggested public remedies run the gamut from relatively modsrate tinkering with the present system of rules and laws to fairly ambitious, large-scals legislative changes. Some of the more modest proposals include more detailed corporate disclosure, increased antitrust resources, taxation and accounting rule changes, and Federal chartering. The more radical rsforms include merger law changes and divestiture through direct legislation. Pub-

★Editors Note: This is the final article in a series addressing issues related to the growth of conglomerate firms in food proccssing. Previous articles are found in the June and September 1978 *National Food Review.* Views expressed in these articles are those of the author and do not necessarily reflect official positions of the U.S. Department of Agriculture.

[1]Since conglomerates in food processing do not differ in the abstract from other conglomerates, the policies reviewed here pertain to all conglomerate firms.

lic policy commentators generally agree, though, that present policies are inadequate to deal with conglomerate mergers since they were designed to deal with single-product firms.

The present line-of-business reporting requirement of the Securities and Exchange Commission (SEC), in force since January 1971, has been criticized since the categories are defined by the companies and are not consistent over time. For example, subpoenaed data from nine large conglomerates show that they had 361 distinct divisions, each corresponding to a related product line, yet their public annual reports showed only 25 lines of business.

The Federal Trade Commission (FTC) instituted its own line-of-business disclosure program in 1975. The program affects about 500 large manufacturing firms. Those firms are now required to report sales and profits in 275 industrial categories. Though more than one-third of the affected companies have refused to comply, its legality has so far been upheld by the courts. However, these data will only be available to a small number o Government officials for antitrust enforcement purposes. Thus, there will remain a considerable loss of information to stockholders, the public, and potentially entrant firms.

Changing tax laws and accounting rules have also been suggested as a way to reduce or eliminate some of the financial incentives that exist for conglomerate mergers. Problems associated with corporate reporting and methods of financial consolidation have already been mentioned. Other concerns have focused on such devices as "pooling of interest" accounting, changing depreciation methods, the amortization of goodwill accounts, and capital gains deferral.

"Pooling of interest" can occur when two firms merge by exchanging stock. By doing this they can artificially inflate earnings by understating the value of the new company's assets.

Capital gains deferral can be an especially large source of future profits for a conglomerate that takes over a financial institution. International Telephone and Telegraph (ITT) for example, has apparently been able to boost its profits by selling stocks from the portfolio of its Hartford Fire Insurance subsidiary. In 1971, Hartford had over $250 million in "unrealized" capital gains which ITT could have converted to profits. A similar arrangement is made possible by tax laws that permit the deferral of profits of foreign subsidiaries. Most rule changes along these lines would tend to lower the reported profits of conglomerates.

Antitrust Reform

Many writers consider that, while the current antitrust laws may be sufficient for the social control of conglomerate firms, the resources available for enforcement may well be inadequate. Many of the precedent-making antitrust cases of the past have involved the Government against large corporations such as Standard Oil, Alcoa, or the Tobacco Trust. These cases have inevitably required long periods of investigation, preparation, "discovery," and argument in court. The current Government cases against the breakfast cereal makers and IBM, for example, are both likely to take over 10 years before final disposition. The public agencies are sometimes outmatched in resources. For example, American Telephone and Telegraph has budgeted over $50 million in legal costs in a suit brought by the Antitrust Division; this is three times greater than the total annual budget of the Antitrust Division of the Department of Justice.

Current merger laws and guidelines are considered inadequate to deal with conglomerate mergers. Several merger "doctrines" apply to conglomerate-type mergers. Generally, acquisitions by companies considered likely to enter the field of the acquired firm (leading potential entrant) and acquisitions having large reciprocity or cross-subsidization possibilities will be

challenged. However, merger guidelines with respect to large firms per se are somewhat unclear at present. In 1969, the Antitrust Division announced that all large mergers by any of the 250 largest industrial firms would be challenged in the courts, but these rules have been withdrawn.

One suggested policy change is to put the burden of proof of the social desirability of a merger on the merging firms. On the other hand, the law could require a positive finding by the FTC that a proposed merger is in the public interest before it is permitted. Such legislation would alleviate the common problem of a court's reluctance to order divestiture of companies that have already been combined for several years.

Other antitrust doctrines may need to be reexamined. One loophole in the merger laws concerns "toehold" acquisitions. Since at least 1968 (the Procter & Gamble—Clorox and General Foods—S.O.S. cases), the acquisition of small firms has been explicitly permitted. The "failing firm" doctrin—permitting the acquisition of a firm likely to go out of business if the merger will "save" the company and the jobs associated with it—is another potential problem. The main problem in this case is in determining whether a firm is actually going to fail or whether its financial condition is exaggerated in order to get the merger approved.

Further amendments may be in order for those parts of the Clayton Act which prohibit "interlocks" of competing companies through stock ownership or common directors. The original intent of the Act was to prevent firms from agreeing not to enter into a field that competes with potential rivals. Given the diversity of today's conglomerates, it is arguable that all large companies are potential competitors. Moreover, there is ample evidence of a proliferation of indirect corporate interlocks through third-firm directorate links (particularly via the largest financial institutions) and the ownership of joint ventures. These interlocks may, it is believed, violate the intent of the Clayton Act.

Legislative Changes

Virtually all the policy options discussed so far would require the use of regulatory agencies and the judicial system. At several points in U.S. history, however, the need for an expeditious remedy has been considered so great that divestiture in an industry has been accomplished by direct legislative action. The Banking Act of 1937, for example, mandated the separation of commercial and inveatment banking. More recently, Congress has considered horizontal divestiture of alternative energy resources by petroleum companies. While such proposals do not appear to be headed for passage at this time, they do demonstrate that Congress is willing, from time to time, to consider divestiture initiatives. However, only widespread public concern over food scarcity, food safety, or food prices would likely engender such action in the food industry.

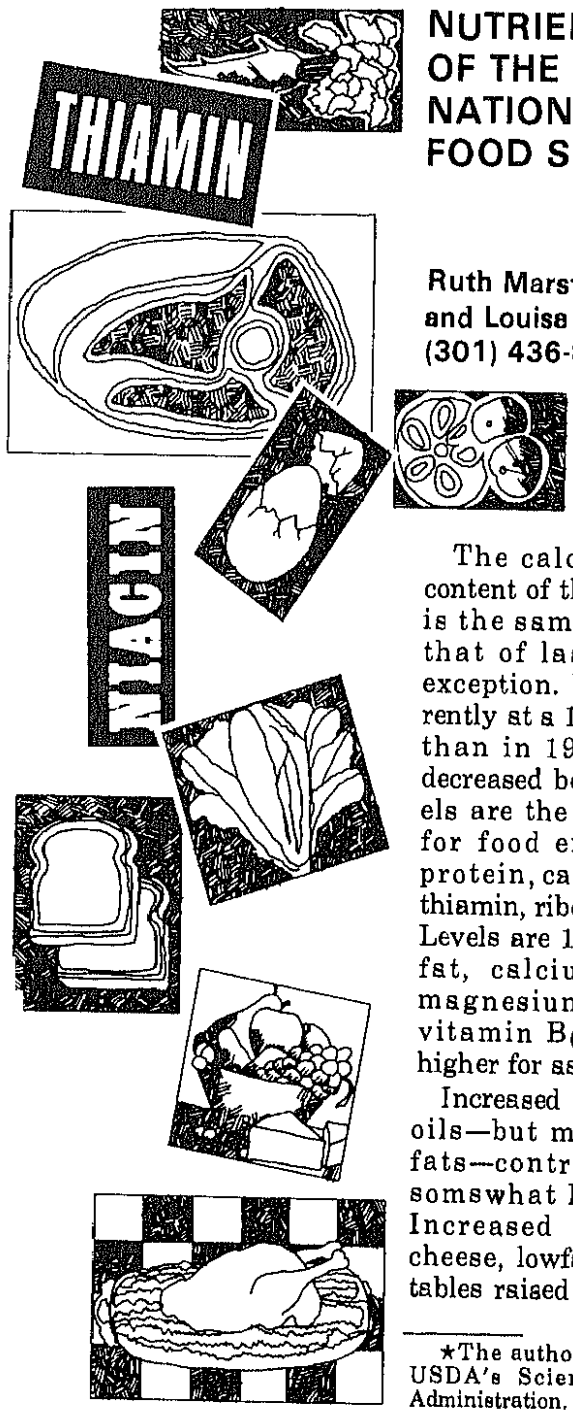
Federal chartering is another proposal that some see as a way to impose higher standards of social responsibility on the largest U.S. corporations. This option also requires legislation. The evolution of State chartering, it is alleged, has contributed to a steady erosion of stockholders' rights and a concurrent rise in managements' discretionary powers. Federal chartering for the largest U.S. corporations could require "public" members on the boards of directors and increased disclosure of a firm's operations, profits, and taxes.

References

Weiss, Leonard W. "Conglomerate Mergers and Public Policy," *Economics of Conglomerate Growth*, Corvallis, Oregon, Ore. St. Univ., Dept. of Agr. Econ., 1969.

Nader, Ralph, Mark Green, and Joel Sligman. *Taming the Giant Corporation.* New York, W. W. Norton & Co., 1976.

Shepherd, William G. *Leading-firm Conglomerate Mergers*, Antitrust Bulletin Winter 1968, pp. 1361-82.



NUTRIENT CONTENT OF THE NATIONAL FOOD SUPPLY

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The caloric and nutrient content of the 1978 food supply is the same as or surpassed that of last year with one exception. Vitamin B_{12} is currently at a 1-percent lower level than in 1977 as a result of decreased beef production. Levels are the same as last year for food energy (calories), protein, carbohydrates, iron, thiamin, riboflavin, and niacin. Levels are 1 percent higher for fat, calcium, phosphorus, magnesium, vitamin A, and vitamin B_6 and 2 percent higher for ascorbic acid.

Increased use of all fats and oils—but mainly vegetable fats—contributed to the somswhat higher fat level. Increased consumption of cheese, lowfat milk, and vegetables raised the calcium level, and with poultry the phosphorus level. Larger supplies of magnesium from cheese, lowfat milk, and processed potatoes and vegetables increaaed the level of this nutrient. About one-half of the magnesium from potatoes now comes from the processed forms.

Vitamin A value was higher in 1978 primarily due to increased use of poultry, margarine, butter, dark-green and deep-yellow vegetables, and sweetpotatoes. Greater consumption of poultry, potatoes, and vegetables is largely responsible for the increase in vitamin B_6. Increased use of potatoes, vegetables, and citrus products provided the larger amount of ascorbic acid.

Situation Since 1967

Relative to 1967, the current food supply provides from 1 to 15 percent higher levels for all nutrients for which estimates are made, except calcium. Calcium is now at the 1967 lsvel after per capita amounts fluctuated within a narrow range for a little more than a decade.

Availability of aacorbic acid increased the most (15 percent) during this period, with increased supplies coming from frozen citrus products (chiefly orange juice), other fruits, vegetablea, potatoes, and the fortification of fruit juices and drinks.

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Two major factors contributed to other gains ranging from 2 to 13 percent. New (1975) and higher enrichment standards for white flour had a measurable impact on the higher levels for niacin, thiamin, and riboflavin, although the gains for two of the vitamins were partially offset by lower consumption of pork (thiamin) and dairy products (riboflavin). Increased consumption of beef and poultry contributed to gains in thiamin, riboflavin, and niacin, and also in protein, iron, phosphorus, magnesium, vitamin B_6, vitamin B_{12}, and fat. However, much of the gain in fat was due to the 45-percent gain in use of salad and cooking oils. The gain in magnesium was due to increased use of peanuts.

Greater use of dairy products, poultry, and vegetables and the addition of vitamin A to foods such as milk account for the increased availability of this vitamin. An annual gain of 24 pounds in syrup consumption during this period provided more carbohydrate. The combined higher levels for the three energy-yielding nutrients—protein, fat, and carbohydrate—accounted for the increase in the calorie level.

The Changing U.S. Diet

The marked decline in coronary heart disease (CHD) mortality that began in the late 1960's has caused scientists to examine possible factors that may have been instrumental in lowering the death rate. Because diet is one of several risk factors in CHD, interest is directed at tracing changes in dietary habits. National food consumption statistics show trends in the U.S. diet since the beginning of the century and provide the basis for interpreting these changes in terms of per capita supplies of dietary fat, fatty acids, and cholesterol—dietary substances of particular interest to scientists studying CHD.

Our current diet, in contrast with that in 1909-13, includes more meat, poultry, and fish; dairy products; fats and oils; processed forms of fruit and vegetables; and sugar and other caloric sweeteners. On the other hand, our diet now includes less eggs, potatoes, sweetpotatoes, grain products, and fresh fruits and vegetables.

Such changes in food consumption have shifted the relative importance of certain food groups as sources of fat. In 1909-13, the fats and oils and the meat, poultry, and fish groups each accounted for 37 percent of the total fat in the U.S. diet, and dairy products

NUTRIENTS AVAILABLE FOR CONSUMPTION, PER CAPITA PER DAY[1]

Nutrient (Unit)	1957-69	1967	1976	1977	1978[2]	1978 as a percentage of: 1957-59	1967	1977
Food energy (Cal.)	3,140	3,210	3,390	3,370	3,380	108	106	100
Protein (Gm.)	95	99	104	103	103	109	106	100
Fat (Gm.)	143	160	160	158	159	111	106	101
Carbohydrate (Gm.)	375	374	391	391	392	105	105	100
Calcium (Gm.)	.98	.96	.95	.94	.95	97	100	101
Phosphorus (Gm.)	1.53	1.64	1.59	1.58	1.58	104	103	101
Iron (Mg.)	16.3	17.3	18.8	18.6	18.5	114	107	100
Magnesium (Mg.)	347	343	355	348	351	101	102	101
Vitamin A value (I.U.)	8,100	7,900	8,100	7,900	8,000	99	101	101
Thiamin (Mg.)	1.84	1.91	2.09	2.08	2.09	113	109	100
Riboflavin (Mg.)	2.30	2.36	2.52	2.49	2.50	109	106	100
Niacin (Mg.)	21 1	22.9	26.2	25.9	26.8	123	113	100
Vitamin B_6 (Mg.)	1.99	2.13	2.29	2.31	2.34	118	110	101
Vitamin B_{12} (Mcg.)	8.9	9.6	9.8	9.9	9.8	110	102	99
Ascorbic acid (Mg.)	104	104	116	116	119	115	115	102

[1]Quantities of nutrients computed by Science and Education Administration, Consumer and Food Economics Institute, on the basis of estimates of per capita food consumption (retail weight), including estimates of produce of home gardens, prepared by the Economics, Statistics, and Cooperatives Service. No deduction made in nutrient estimates for loss or waste of food in the home, use for pet food, or for destruction or loss of nutrients during the preparation of food. Civilian consumption. Data include iron, thiamin, riboflavin, and niacin added to flour and cereal products; other nutrients added primarily as follows: Vitamin A value to margarine, milk of all types, milk extenders; vitamin B_6 to cereals, meal replacements, infant formulas; vitamin B_{12} to cereals; ascorbic acid to fruit juices and drinks, flavored beverages and dessert powders, milk extenders, and cereals. Quantities of added nutrients for 1960-66 were estimated in part by Consumer and Food Economics Institute. Nutrient data reflect revision of potato series 1956 to present. [2]Preliminary.

contributed 15 percent. By 1967, these figures had shifted to 41 percent from fats and oils, 35 percent from meat, poultry, and fish, and 14 percent from dairy products—similar to shares for today's food supply. These broad groupings, however, give little insight on changes that might be related to the rise and subsequent fall in CHD. For that, it is necessary to look at more details.

PERCENTAGE OF NUTRIENT FAT FROM FATS AND OILS GROUP

	1909-13	1947-49	1967	1978[1]
Butter	38	20	9	7
Lard	32	29	7	4
Shortening	22	23	32	32
Margarine	3	11	17	17
Salad and cooking oils	4	17	36	40

[1]Preliminary.

Note. Components may not add to 100 due to rounding

Fats and Oils

Salad and cooking oils now provide two-fifths of the fat coming from the fats and oils group. Use of these oils doubled between 1947-49 and 1967 and increased again by about one-half in the decade that followed. This sharp upturn reflects the growing use of liquid oils by food processors and fast-food outlets, as well as by home consumers. Cottonseed oil was the leading oil used at the beginning of the century but has been replaced by soybean oil today. Soybean oil is also the predominant oil used in margarine, but the manufacture of "soft" margarine has sharply expanded the use of corn and safflower oils.

Total shortening consumption more than doubled during the past 65 years with the steady increase in its use beginning in the late 1950's. Between 1967 and 1978, use increased about one-eighth. Shortening's contribution to fat from the fats and oils group increased from one-fifth in 1909-13 to one-third in 1967 and in 1978.

Use of animal fats has decreased dramatically. Lard provided one-third of the fat from the fats and oils group in 1909-13 compared with less than one-twentieth today. Butter, once the major source of fat among the fats and oils group, now provides less than one-tenth of the fat from this group. Per capita consumption of margarine exceeded butter in the mid-1950's, with most of the increase occurring prior to 1967. Margarine now accounts for about one-sixth of the fat from the fats and oils group—the same as in 1967, but substantially more than the one-tenth or less provided prior to 1950.

FAT IN THE U.S. DIET FROM ANIMAL AND VEGETABLE SOURCES, PER CAPITA PER DAY

	Animal sources					Vegetable sources					
	Meat poultry fish	Eggs	Dairy products excluding butter	Butter lard, edible beef fat	Total[1]	Other fats and oils	Dry beans, peas nuts, soy products	Flour and cereal products	Other foods	Total[1]	Total[1]
	Grams										
1909-13	46.4	4.8	18.6	33.8	103.5	12.3	2.4	4.8	1.8	21.3	124.8
1947-49	46.8	6.0	24.5	27.4	104.8	25.1	4.7	2.6	3.3	36.8	140.6
1967	52.2	5.2	20.2	19.6	97.3	41.6	5.5	2.1	3.3	62.6	149.7
1978[2]	53.5	4.4	19.8	13.4	91.2	56.5	7.2	2.1	3.2	67.9	159.1

[1]Components may not add to total due to rounding.
[2]Preliminary.

Meat, Poultry, Fish

The meat, poultry, and fish group, now the second largest contributor of fat to the U.S. diet, accounts for a smaller share of total fat than in 1909-13, largely due to shifts in consumption of beef and pork. At the beginning of the century, pork was used in larger quantities than beef; but since 1953, beef has pulled ahead of pork. Despite the large increase in beef, pork still provides more fat.

PERCENTAGE OF NUTRIENT FAT FROM MEAT, POULTRY, AND FISH GROUP

	1909-13	1947-49	1967	1979[1]
Beef	25	24	35	38
Veal	2	2	1	1
Lamb and mutton	3	2	2	1
Pork, lean	25	26	22	20
Pork, fat cuts	35	36	30	28
Poultry	5	6	6	7
Fish	3	2	3	3
Other	2	2	2	2

[1]Preliminary.

Note: Components may not add to 100 due to rounding.

Dairy Products

Dairy products, excluding butter, account for a smaller share of fat today—12 percent—compared with 15 percent in 1909-13 and 17 percent in 1947-49. Whole fluid milk and cream use has decreaaed while lowfat milk has increased significantly.

PERCENTAGE OF NUTRIENT FAT FROM DAIRY PRODUCTS GROUP

	1909-13	1947-49	1967	1978[1]
Fluid whole milk	67	57	54	38
Cream	18	12	6	6
Fluid lowfat milk	2	2	4	9
Evaporated, condensed, and dry milks	4	9	6	3
Ice cream and other frozen desserts	1	10	12	12
Cheese	9	11	19	31

[1]Preliminary.

Note: Components may not add to 100 due to rounding.

Dietary Fat

Since 1909-13, changes in food consumption have added over one-fourth more fat—or 34 grams per capita per day—to the amount available from the U.S. diet. Three-fourths of this increase had occurred by 1967, the remaining one-fourth by 1973, when the per capita level first reached 159 grams per day. Since then, except for a sharp drop in 1975, fat has fluctuated around the current level. Fat now accounts for 42 percent of the total calories in food available for consumption, up from 32 percent in 1909-13.

The increase in fat is due to increased use of vegetable fats, primarily salad and cooking oils. However, animal fats continue to provide the largest proportion. Vegetable sources

PERCENTAGE OF TOTAL CALORIES FROM FAT AND SPECIFIED FATTY ACIDS

	Calories from fat			Calories from fatty acids		
	Animal	Vegetable	Total	Total saturated fatty acid	Oleic acid	Linoleic acid
1909-13	26.6	5.5	32.1	12.9	13.0	2.3
1947-49	28.9	9.9	38.8	16.0	15.9	3.8
1967	27.0	14.6	41.6	15.5	16.6	5.4
1978[1]	24 1	17.9	42.0	14.7	16.2	6.7

[1]Preliminary.

now account for 43 percent of the fat compared with 17 percent in 1909-13. Fat from animal sources has dropped despite the increased consumption of beef—due mainly to sharply curtailed use of butter and lard.

Fatty Acids

The fatty acid content of the U.S. diet and the share of calories provided by saturated fatty acids, oleic acid, and linoleic acid have been affected by the longtime rise in use of fats from vegetable sources. Fats in our diets have become far less saturated. Between 1909-13 and 1978, the share of fat calories from saturated fatty acids decreased from 46 to 39 percent, while those from linoleic acid increased from 8 to 18 percent.

Cholesterol

The cholesterol content of the U.S. diet is about the same today as in 1909-13—around 500 milligrams per capita per day, notwithstanding the higher amount of total fat in the current diet. However, cholesterol was much higher in 1947-49 than today.

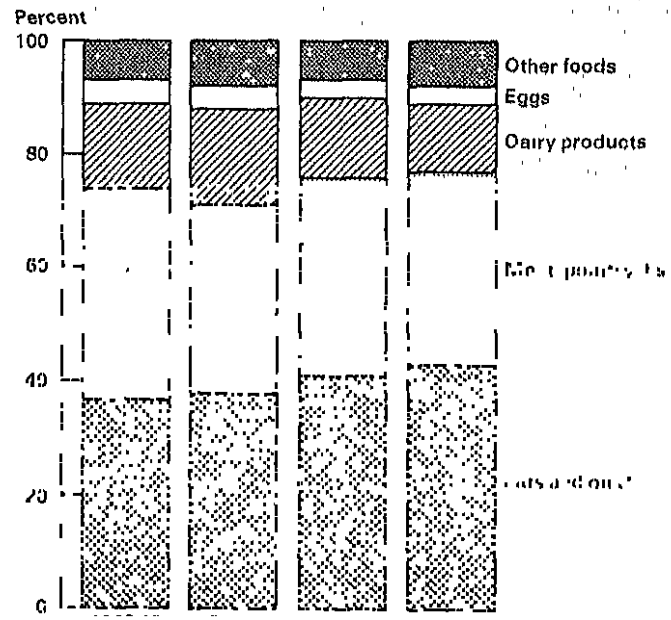
The answer to what extent, if any, changes in the U.S. diet have contributed to the decline in mortality from CHD is not yet known. But it is evident that marked changes in food consumption during this century have affected the dietary fat, fatty acid, and cholesterol intake.

CHANGE IN CHOLESTEROL IN THE U.S. DIET

	1903-13 – 1978[1]	1947-49 – 1967	1967 – 1978[1]
		Percent	
All food	+1	-6	-5
Meat	+16	+14	+2
Poultry	+230	+105	+27
Fish	+79	+20	+27
Eggs	-8	-14	-15
Dairy products	+6	-17	-2
Butter	-74	-48	-17
Lard and edible beef fat	-49	-19	-40

[1]Preliminary.

SOURCES OF NUTRIENT FAT, SELECTED PERIODS
Per Capita Civilian Food Supply



CONTRIBUTION OF MAJOR FOOD GROUPS TO NUTRIENT SUPPLIES AVAILABLE FOR CIVILIAN CONSUMPTION

Food groups	Food energy	Protein	Fat	Carbohydrate	Calcium	Phosphorus	Iron	Magnesium	Vitamin A value	Thiamin	Riboflavin	Niacin	Vitamin B_6	Vitamin B_{12}	Ascorbic acid
								Percent							
1967															
Meat (including pork fat cuts), poultry and fish	20.0	40.4	34.9	0.1	3.7	26.5	30.2	13.0	22.7	28.6	24.0	46 4	45.9	68 9	1.3
Eggs	2.3	5 9	3.4	.1	2.6	6.0	6.0	1.4	6.7	2 6	5.7	2	2.3	9.4	0
Dairy products, excluding butter	11.9	22.7	13 5	7.3	76.0	36.4	2.2	22.4	12.3	9 7	41 9	1.7	10.6	20.9	4.8
Fats and oils, including butter	17.0	.2	40.9	(2)	.4	.2	0	.4	8 3	0	0	0	.1	0	0
Citrus fruits	.8	.4	.1	1.8	.9	.6	.8	2.0	1.3	2.5	5	8	1.2	0	26 0
Other fruits	2.3	6	.2	5.0	1.2	1.1	3.6	3.9	6 1	1.9	1.5	1.8	5 9	0	10 7
Potatoes and sweetpotatoes	2 8	2.3	.1	5.3	1.0	3.5	4.0	7.0	5.8	5.0	1.5	6.6	9 6	0	16 2
Dark green and deep yellow vegetables	.2	.4	(2)	5	1.4	.6	1.6	2.0	20 0	8	1 0	.6	1 7	0	8.6
Other vegetables, including tomatoes	2.5	3 3	.4	4.6	4.7	4.8	9.1	10.2	15 2	6.7	4.4	6 0	9.5	0	30 9
Dry beans and peas, nuts, soy flour and grits	3 0	5.0	3.7	2.2	2.6	5 7	6.5	11.0	(2)	5 4	1 7	6.6	4 3	0	(2)
Flour and cereal products	20.2	18.4	1.4	36.6	3.4	12.5	28.0	18.1	.4	36.7	16 9	23.9	8.8	.8	0
Sugar and other sweeteners	16.2	(2)	0	36.0	1.0	.2	5.3	2	0	(2)	1	(2)	(2)	0	(2)
Miscellaneous[3]	.8	.4	1 4	7	1.0	1 9	2 7	8.4	1 2	.1	7	5.4	1	0	1 5
1978 Preliminary															
Meat (including pork fat cuts), poultry and fish	19 8	42.3	33.6	0 1	3.9	28.3	30.6	14 2	22.8	26.0	24.4	45 1	47.4	70 6	1 1
Eggs	1 8	4.8	2.8	1	2.2	5.0	4.7	1.2	5 7	2.0	4 6	1	1.8	7.8	0
Dairy products, excluding butter	11.2	22.1	12 5	6.7	74.6	35 0	2.5	21 7	13.3	8.7	39.3	1 4	10 5	20 1	3.8
Fats and oils, including butter	18.1	2	43.4	(2)	.4	.2	0	.4	8 5	0	0	0	(2)	0	0
Citrus fruits	1.0	.5	.1	2.0	1 0	.8	.8	2.3	1.6	2.7	5	.8	1 2	0	27 4
Other fruits	2 2	.6	.3	4.7	1.2	1 1	3.4	4 0	5 8	1.8	1 5	1.6	5 8	0	12.1
Potatoes and sweetpotatoes	3.1	2.5	.1	5.8	1.1	3.8	4 6	7.6	5.2	5.3	1.5	6.7	9 4	0	15 8
Dark green and deep yellow vegetables	.2	.4	(2)	.4	1.4	6	1 5	1.9	18.8	.8	.9	.5	1 6	0	8 7
Other vegetables, including tomatoes	2.5	3.2	4	4.7	4.9	4.9	8.8	10.4	15.5	6.3	4.3	5 5	9 0	0	27 6
Dry beans and peas, nuts, soy flour and grits	3.4	5 9	4.5	2.2	3.0	6.6	6.6	12.8	(2)	5 6	1 9	8.2	4.6	0	(2)
Flour and cereal products	18.7	17 1	1 3	34.0	3.3	11.9	27 5	17 5	4	40.8	20.5	26.9	8.6	1 5	0
Sugars and other sweeteners	17.4	(2)	0	38.9	2.4	.5	7.0	.2	0	(2)	(2)	(2)	(2)	0	(2)
Miscellaneous[3]	.6	.3	1.1	.5	.7	1.4	1.9	5.9	2 3	1	.5	3.0	1	0	3 5

[1]Percentages for food groups are based on nutrient data included in totals in table entitled "Nutrients Available for Consumption."
[2]Less than 0.005 percent.
[3]Coffee and chocolate liquor equivalent of cocoa beans and fortification of products not assigned to a specific food group

DOES RACE INFLUENCE FOOD PURCHASING?

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The Bureau of Labor Statistics' Consumer Price Index (CPI) is the most widely used measure of price changes in the economy. To develop this index, prices are collected on a variety of products, summarized, and weighted by their relative importance. The weights reflect the purchasing patterns of a typical urban American household. Since the weights represent mean expenditure patterns they may not be representative of the purchasing patterns of various socioeconomic and demographic groups within the U.S. population, and as a result movements in the overall CPI may not provide meaningful indications of changes in the cost of living for these groups.

The last two issues of the *National Food Review* contained articles analyzing the impact of income and age on food spending. This article examines food purchasing patterns by race of family head. The specific questions addressed are:

- Does race really make a difference in food buying patterns?
- Does race have an impact on the allocation of the food-at-home dollar?
- What is the relationship of race, food spending, and income?
- Are there differences in actual per capita weekly food spending by each racial group?
- What portion of the total food expenditure is accounted for by each racial group, relative to their portion of the total population?

Whether race impacts on food expenditures is especially significant to the South (as defined by the Census Bureau) and to a lesser degree, the West. In terms of racial composition, these regions are the least homogeneous. Black Americans comprise about 11 percent of the U.S. population, but nearly four out of every seven reside in the South. About one out of every five southern Americans are Black, compared with only one out of about 20 in the Northeast and north-central region.

As defined by the Census Bureau, "other" Americans include native Americans and Orientals. This grouping is extremely diverse. Japanese Americans for instance have the highest per capita income of any socioeconomic group in the country, while native Americans have the lowest income. As a result, interpretations of income and consumption behavior of the "other" group takes on far less significance than those of Black and White groupings. This "other" group, about 1½ percent of the population, is largely located in the West. Although small in relation to the total population, about four out of every seven people in

RACIAL DISPERSION BY REGION IN THE U.S., 1975

	Northeast	North Central	South	West	Total
White and other than Blacks	91	92	81	94	89
Black	9	8	19	6	11

Source: U S. Bureau of the Census, *Statistical Abstract of the U.S.: 1977*, (98th edition.), Washington, D.C., 1977.

ALLOCATION OF THE FOOD-AT-HOME DOLLAR, BY RACE AND INCOME

Item	Under $5,000		$5,000-$8,000		$8,000-$12,000		$12,000-$15,000		$15,000-$20,000		Over $20,000	
	White	Black	White	Black	White	Black	White	Black	White	Black	White	Black
Meat, poultry	36.69	47.50	36.77	47.77	37.13	47.39	35.33	46.66	40 12	50 74	40 1	53 28
Fish and eggs												
Meats	25 76	31.50	26 86	31.56	27.52	32.81	26 97	30.44	31 3	38.57	30.12	39.58
Pork	8.28	14.27	8.79	14.39	8.12	14.03	8 19	11.56	7.80	13.02	8.53	15 58
Other meats	4 37	4.99	4.39	4.91	4.86	5.35	5.00	4 76	4 70	4 11	4.37	4 57
Poultry	5.15	8.47	4.55	8.35	4.49	7.95	4.26	8.24	4.07	6 19	4.45	7 22
Fish	2.51	3.82	2.49	4.28	2.43	3.17	2.58	4 76	2.42	3 29	3.16	4.09
Eggs	3.25	3.66	2.89	3.56	2.63	3.44	2.51	2.80	2.24	2.70	2.25	2.41
Dairy products	14.28	10.46	13.96	10.69	14.29	10.77	14 48	10.95	14.23	10.12	13.60	8 19
Cereal and Bakery	12.68	11.49	12.51	11.18	12.29	11.06	12.37	10.51	11.54	9.63	11.4	10.16
Fruits and vegetables	15.42	13.22	14.69	14.05	13.81	13.92	13.99	13.99	12.99	12.12	14.68	11.96
Sugar and sweets	3.09	2.37	30.56	2.41	3.03	2.10	3.23	23.1	2.94	1.92	2 79	2.09
Fats and oils	3.48	2.96	31.09	2.78	2.99	2.71	2 98	2.63	2.92	2.09	2.66	2.86
Nonalcoholic beverages	7.40	6.27	7.47	6.07	7.79	6.47	7.53	7.34	7.04	6.82	6.56	5.86
Prepared foods	7.06	5.75	8.48	5 07	8.65	5.60	9.13	5.73	8.17	6.59	8.00	5.61

Source: CES Tapes.

this category are in the West. Nearly one out of every 25 Westerners falls in this category, compared with about 1 percent or less in the other three regions.

Food Spending and Income by Race

The 1972-73 Consumer Expenditure Survey indicates that, on the average, Black families are larger and have lower incomes than White families. Black families averaged 3.1 persons compared with 2.8 persons for White families. Income before taxes averaged about $6,600 for Black families, against nearly $9,800 for Whites. A total of 46.3 percent of the Black families had before-tax incomes under $5,000, while 26.0 percent of White families had less than $5,000. Of the White families, 11.5 percent had incomes before taxes over $20,000, compared with 4.2 percent of the Black families.

Reflecting, in part, their lower average income, Black families spent a larger share of their income on food than White families, an average of $27.22 per week or about 21.4 percent of their income. White families on the other hand, spent an average of $32.93 per week or 17.5 percent of their income on food.

On a per capita basis, food expenditures by Whites averaged $11.76 per week compared with $8.78 for Blacks. More than half of that $3 weekly differential was for food eaten away from home. Per capita weekly expenditures for food eaten away from home averged $1.61 for Blacks compared with $3.26 for Whites. Whites spent an average of 12.5 percent of their income for food at home, while Blacks averaged about 17.5 percent.

On the average, white families allocated about 72 percent of their food budget to food at home. In addition, race appears to affect the allocation of the food-at-home dollar. Black families spent, on the average, about 47 cents of their food-at-home dollar on meat, poultry, fish, and eggs compared with 38 cents for White families. Blacks spent an average of $3.07 per week on pork, while White families spent an average of $1.97 per week. Blacks also spent more and a larger percentage of their food-at-home dollar on poultry and fish than did Whites. Offsetting these large purchases were lower expenditures by Black families for dairy products, cereal and bakery products, sugar and other

sweets, nonalcoholic beverages, and miscellaneous prepared foods. Black families spent on the average 30.1, 17.5, 32.9, 15.3, and 31.1 percent less, respectively, on dairy products, cereal and bakery products, sugar and sweets, nonalcoholic beverages, and miscellaneous prepared foods.

Does Rsce Account for Thesa Diffarences?

These differences in food expenditure patterns by race may reflect differences in income, family size, location of residence, and other factors, and thus may not reflect only the impact of race. In order to isolate the net impact of race on household food purchases, statistical techniques were applied to data collected in the 1972-73 Consumer Expenditure Survey. The results of the statistical analyses indicate that race (by itself) does not affect household purchases of beef, fresh fruits, fresh and processed vegetables or total food-at-home.

However, there were some statistically significant differences within the food-at-home category. White families were found to spend about 19, 38, 5, 9, and 12 cents more per person per week on cereal and bakery products, processed fruits, sugar and other sweets, and nonalcoholic beverages respectively, than their Black counterparts. White families were also found to spend 6, 23, and 64 cents more per person per week on fats and oils, miscellaneous prepared foods, and food-away-from-home, respectively, than Black families. White families, though, spent less per person on pork, poultry, fish and other seafoods, and eggs than their Black counterparts. The estimated differences were 44, 29, 14, and 5 cents per person per week on pork, poultry, fish and seafoods, and eggs, respectively.

ALLOCATION OF FOOD AT-HOME DOLLAR BY RACE OF FAMILY HEAD

Item	White	Black	Other
	Percent		
Cereal and Bakery Products	12.1	10.7	11.9
Meat, Poultry, Fish, Eggs	37.8	47.2	41.5
Meats	28.5	32.3	27.3
Beef	15.7	13.4	14.3
Pork	8.3	13.8	9.3
Other	4.7	5.1	3.6
Poultry	4.2	7.7	5.6
Fish and Seafood	2.6	4.1	5.7
Eggs	2.4	3.0	2.8
Dairy Products	14.1	10.6	10.5
Fruits and Vegetables	14.5	14.0	16.2
Fresh Fruits	3.8	3.5	5.0
Fresh Vegetables	4.4	4.4	5.5
Processed Fruits	3.0	2.4	2.8
Processed Vegetables	3.3	3.6	2.8
Sugar and Other Sweets	3.1	2.2	2.1
Fats and Oils	2.8	2.5	2.9
Nonalcoholic Beverages	7.4	6.7	6.1
Miscellaneous Prepared Foods, Condiments and Seasonings	8.2	6.1	8.8

Source: CES, Diary Survey, July 1972–June 1974.

Proportion of Food Expenditures, Income, and Population

The results suggest that race may have a significant influence on the food market. The food expenditures by Whites are much greater than their percentage of the population, but somewhat lower than their share of total income. In addition, the share of away-from-home food purchases accounted for by Whites exceeds both their portion of the population and their share of income.

Blacks comprise about 11 percent of the population but account for only 7 percent of total income. However, they account for about 8½ percent of total food expenditures. Blacks account for approximately 9½ percent of food-at-home purchases, and for 5.7 percent of food-away-from-home purchases.

In terms of individual food purchases, race appears to have an even more important influence. Blacks accounted for over 16½ percent of pork expenditures, about 10 percent of poultry expenditures, and 15½ percent of all expenditures on fish. Expenditures by Blacks for dairy products, cereal and bakery products,

and processed foods were much lower relative to their share of the population.

Implications for the Future

Census projections into the next century suggest that the racial composition of the U.S. population will change. This change is expected to occur because of historical differences in the birth rate between racial groups. By the year 2000, the Black population is projected to increase by about 43 percent, compared with 27 percent for Whites. However, the population in the "other" grouping will rise almost 150 percent, due to the relatively young age of Japanese Americans and high birth rates among native Americans. If these projections hold true, Whites will comprise about 84.1 percent, and Blacks will make up 12.5 percent of the population in the year 2000. Currently, Whites make up about 86.5 percent, and Blacks make about 11.4 percent of the population.

These population trends will exert a positive influence on per capita pork, poultry, fish, and egg consumption, but exert a negative influence on per capita consumption of cereal and bakery products, dairy products, sugar and other sweets, nonalcoholic beverages, and fats and oils.

RELATIONSHIP BETWEEN INCOME, POPULATION AND FOOD EXPENDITURES BY RACE

Race of Family Head	Population	Money earned before taxes	Total food expenditures	Total food at home	Total food away from home
	Percent				
White	87.6	91 9	90 3	89.3	93.2
Black	11.1	7 0	8.4	9.4	5.7
Other	1.3	1.2	1.3	1.3	1.1
Total	100.0	100.0	100.0	100.0	100.0

Source. Consumer Expenditure Survey, Diary Survey, July 1972-June 1974.

ALLOCATION OF FOOD DOLLAR BETWEEN FOOD AT HOME AND FOOD AWAY FROM HOME BY RACE OF HOUSEHOLD HEAD

Race	Food at Home		Food Away from Home		Total Food
	Amount/ Week	Percent	Amount/ Week	Percent	Amount/ Week
White	$23.81	72.3	$9.13	7.7	$32.93
Black	22.23	81.7	4.99	18.3	27.22
Other	26.56	76.3	8.23	23.7	26.56
All families	23.68	73.1	8.70	26.9	32.38

Source. Consumer Expenditure Survey: Diary Survey, July 1972-June 1974.

References

U.S. Bureau of the Census. *Statistical Abstract of the U.S.: 1977.* (98th edition) U.S. Government Printing Office, Washington, D.C. 1977.

U.S. Bureau of the Census. *Current Population Reports.* Series P-25, No. 601, "Projections of the Population of the U.S.: 1975 to 2050." U.S. Government Printing Office, Washington, D.C., 1975.

U.S. Bureau of Labor Statistics. *Consumer Expenditure Survey: Dairy Survey, July 1972-June 1974.* Bulletin No. 1959, U.S. Government Printing Office, Washington, D.C., 1977.

CHANGES IN SCHOOL LUNCH PARTICIPATION

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The National School Lunch Program (NSLP) provided meals to half of the Nation's 51 million school children on an average school day in 1977. Of the total cost of over $4 billion, Federal contributions averaged 45 percent.

In the early 1970's, the nationwide growth in the number of full-price lunches slackened after two decades of expansion. The overall growth of the program has continued, though, because of increases in free and reduced price lunches. These more than doubled between 1970 and 1977. Of an estimated 4.2 billion lunches served in 1977, over 44 percent were served free or at reduced prices, compared with 21 percent in 1970. Expansion of the free lunch program meant that some students who formerly paid for lunches could receive them free once their eligibility was certified.

The character and setting of the paid-lunch program was changed in the 1970's in still other ways. Average lunch prices rose as some school systems adjusted prices to cover higher food and labor costs. A liberalization of the rules for serving a la carte foods provided other sources of food at school. And school enrollments fell after rising for decades.

Higher lunch prices or access to lunch alternatives would be expected to reduce lunch participation. Similarly, smaller enrolments would be expected to reduce the potential for expansion of school lunch and other school-based feeding programs. And, to the extent that students who formerly paid received free or reduced price meals, the base of paying students would be decreased. This article assesses the effects of these changes on participation in the paid lunch program between 1972 and 1975.

Analysis of Participation

The samples—Two nationwide surveys taken in 1972 and 1975 obtained information about participation in the NSLP, lunch prices, availability of food alternatives, and characteristics of participating schools.

The average lunch price in 1975, at 48 cents, was 18.5 percent above the 1972 average. Lunch participation rates also were higher in 1975—48.7 percent compared with 43.1 in 1972. In 1972, over half of the schools surveyed were large—1,000 students or more—but this dropped to slightly over 25 percent in 1975.

In both years, one in four schools permitted children to leave school grounds at lunchtime. And, in both years, one in 10 sample schools served food prepared at places other than the service site. On-campus alternatives were available in 50 percent of the schools in 1975, up from 42.9 percent 3 years earlier.

To summarize, the schools in the two surveys were similar with respect to lunch alternatives. They differed most in prices, participation rates, and average size of the school surveyed in 1975.

The model—For purposes of this study, participation was defined as the ratio of students buying lunches at the customary full price to the average daily attendance of potential buyers. Potential buyers included all those attending classes except those who had been certified as eligible to receive free lunches. This ratio was assumed to depend on lunch prices, lunch substitutes, lunch practices, and school size.

Results—The results show that participation in 1975 was significantly different from

1972. Although in both years participation rates were affected significantly by lunch price changes, the average response to a given price change was smaller in 1975. Lower participation rates were also associated with the availability of campus and off-campus meal alternatives. In the 1975 survey, participation rates were higher for schools preparing and serving lunches onsite. This difference was not found in 1972. And participation rates among students in large schools dropped significantly in 1975.

Prices—Although average participation levels in the paid lunch program were higher in 1975 than in 1972, the total number of paid lunches was smaller in 1975. In 1975, however, a smaller change in participation rates followed a given price change. Several features of the lunch program may account for this.

The effect of rising prices was probably reduced by tying lunch reimbursement rates to the cost index of food consumed away from home. This assured that Federal support for lunch programs kept pace with rising prices and, thus, preserved the real value of this subsidy to local programs. Some local school authorities, trying to hold prices down in an era of rapidly rising costs, either allocated additional funds to their lunch programs or paid outstanding indebtedness incurred by the lunch program as needed. Both of these actions tended to slow the rise in costs and relieve some of the pressure on lunch prices.

Students' reactions are only one element—not always a dominant one—in lunch price changes. This is because the prevailing lunch price at a particular school reflects such factors as the perception of its "proper" level, the interval since the last change, the status of the school lunch fund, and other judgmental considerations.

Lunch alternatives—Schools offering alternatives to the regular lunch had lower participation rates in both years. This applied both to schools with no campus restrictions and to schools offering a la carte foods.

Between 1972 and 1975, the regulation affecting the sale of competing foods during lunch hour also was changed—to a less restrictive policy allowing greater competition to the regular school lunch from other sources of food on campus. Previously, students had to select individual foods served as part of an approved lunch. The new regulation permitted them to choose from a wider variety of foods.

Preparation site—Schools that both prepare and serve lunches at one site have the potential for higher school lunch participation rates than those that serve lunches prepared elsewhere. Preparing and serving in one location puts the choice of food to be served, its preparation, and appearance under the exclusive control of one school's staff. In contrast, local control is more limited when central kitchens or other off-campus sources handle meal planning and food preparation. Because they have greater latitude, onsite operations can take local tastes and preferences into consideration more easily and thus make lunches more acceptable to students. This is especially important when local lunch program managers must encourage continuing participation in the regular lunch program under pressure of rising prices and greater accessibility of lunch alternatives.

The higher participation rates among students in schools with onsite programs in 1975 lends support to the contention that greater flexibility and the control of food choice and service allowed those schools to maintain the quality of lunch preparation and service.

School size—In 1972, participation rates were the same in large and small schools. In 1975, students in large schools (over 1,000 students) participated in the school lunch program at a significantly lower rate. This may suggest that small schools are more adaptable to changed program conditions. Relatively more of their students are available for lunch compared with larger schools which often have programs that involve students who are officially attending school but are away from school part of the day. Small schools are also less likely to be located in urban areas, thus their range of lunch alternatives is likely to be narrower.

CURRENT ECONOMIC RESEARCH ON FOOD STAMP USE★

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The Food Stamp Program (FSP) represents this country's most basic public policy tool for raising the nutritional status of diets among the poor. The present program began as a pilot project in 1960 and was made permanent by the Food Stamp Act of 1964. It was designed to provide low-income households with the food-buying income necessary to purchase a nutritionally adequate diet through regular market channels. Since its earliest days, the program has had farm income support as a companion goal.

This article summarizes two studies recently completed by USDA analysts that may be of special interest to both consumers and food retailers. The studies reviewed here were undertaken to answer two questions:

- Is the FSP effective in increasing total food expenditures?
- What store types benefit most by food stamp redemptions?

Are Food Expenditures Increased?

Probably the most basic of questions is whether participant households actually increase food purchases as a result of the FSP. The answer may seem obvious. Since all food coupons distributed must be spent for food, it seems only logical that the program influences increases in total food expenditures. The answer, however, is not that simple. While it is true that all food stamps must be spent for food, some of the food aid is probably substituted for food purchases which would have been made with earned income. The research question, then, is to determine the extent of this substitution.

A fair amount of research has been done to determine the food buying effectiveness of the bonus food stamps. Unfortunately, none of the studies have been conducted since the FSP became truly national in scope. All were conducted while the FSP was operated under program rules quite different from those used today.

The available studies indicate that bonus stamps increase food expenditures by about 40 to 60 cents per dollar. However, the studies also indicate that, over time, as the proportion of bonus stamps to total stamps has increased, the effectiveness of each dollar of bonus stamps in increasing food expenditures has fallen.

Using the available evidence to make an estimate, the current FSP of $5 billion plus adds approximately $2.5 billion to the retail food purchases of low-income households. Such an increase means that the FSP increases total food expenditures of low-income households by about 8 percent.

To develop an estimate of the net increase in retail food expenditures that result from the FSP, it is necessary to subtract from the $2.5 billion the reduced food expenditures by the higher income households that are taxed to pay for the program. These reduced expenditures are estimated at about $500 million, based on data indicating that higher income households allocate about 10 cents out of each dollar of earned income to food.

In the absence of the program, then, total food sales could fall by as much as $2 billion. While this is a large amount of money, and is particularly important for some retailers, it represents less than 1 percent of total personal consumption expenditure for food ($230 billion in 1978).

Where Are the Stamps Redeemed?

A major effort to identify and analyze the distribution of food stamp redemptions by store type and by geographic region has just been completed.

★Editor's Note: An ESCS publication providing more detail is available from the authors. Ask for ESCS-37.

Plans are also in the making for a study investigating the extent to which stamps are redeemed in the market area where issued.

In the study just completed, food stamp redemptions from July 1975 to June 1976 were analyzed by region, kind, and size of store. Two distributions for each category—one for food stamp redemptions and one for all other cash/check receipts were calculated. Together they equal total food sales in stores accepting food stamps for the entire fiscal year.

Stores in the mid-Atlantic, Southeast, and Southwest regions redeemed a larger proportion of total food stamps than they had of total food sales. All other regions had a higher percentage of total food sales than total food stamp redemptions.

But redemptions by store type alone do not tell the story. The real impact of the FSP on the potential structure of the food retailing sector is shown when these data are analyzed by store size regardless of kind. Stores with less than $50,000 in gross annual sales accounted for less than 1 percent of total food sales but redeemed 3.5 percent of all food stamps. All stores with less than $1 million in sales redeemed a higher proportion of total stamps than of total food sales. Thus, while the data clearly show that the larger stores (that is, those with sales exceeding $1 million annually) dominate both stamp redemptions and total food sales, the smaller stores benefit proportionately more by the FSP in terms of absolute dollars.

The proximity of many small independent stores to areas with large numbers of participating food stamp households likely explains why these store types benefit proportionately more from food stamp redemptions. The extent to which food stamp redemptions are actually made in stores within the area where the stamps are issued, however, has not been determined. Nor is it known if there are differences among the recipient households with respect to the size or kind of store used most frequently. Answers to these questions should help shed additional light on the question of whether or not the poor pay more for food.

Conclusion

The FSP does appear to result in increased food expenditures by the participant households. While exact figures are uncertain, the available evidence indicates that in the aggregate, food expenditures by food stamp households increase by about 50 cents for each $1 in bonus food stamps distributed. This means that the $5-billion program added about $2.5 billion to total retail food expenditures by low-income households in 1977.

Small stores (those with less than $1 million in annual sales) apparently gain proportionately more as a result of the FSP. These stores redeemed a higher proportion of total food stamps than of total food sales.

CONSUMERS' PERCEPTION OF MEAT AND POULTRY INSPECTION

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The Federal Meat Inspection Act and Federal Poultry Products Inspection Act makes USDA responsible for inspecting for wholesomeness all meat and poultry products moving in interstate commerce. States are required to maintain inspection services that are equal to Federal standards for products moving in intrastate commerce. Government inspection procedures, however, do not include provisions for testing or regulating the presence of salmonellae bacteria on fresh meat and poultry.

A USDA survey conducted in 1974 on consumers' knowledge about food safety and practices found that approximately two-thirds of the respondents thought it was not very likely that the inspected meat and poultry they bought contained harmful bacteria.[1] This may suggest that some homemakers believe that government-inspected meat and poultry is completely free of potentially harmful bacteria. Homemakers with such an impression may not adequately comprehend the need for precautionary meat and poultry handling practices. The survey also indicated that homemakers tended to underrate their individual responsibility for hygienic food preparation—possibly because

[1] *Food Safety: Homemakers' Attitudes and Practices* U.S. Department of Agriculture/Economic Research Service, Agricultural Economic Report, No. 360.

of a mistaken perspective regarding the scope of government inspection programs. Partially as a result of this 1974 survey, USDA has stepped up its emphasis on the development and dissemination of educational material on food safety information to consumers.

A more recent survey indicates that these informaional efforts may have had some positive impact. In 1977, USDA conducted a nationwide survey that obtained consumers' attitudes about and reactions to a variety of food-related topics (e.g., food shopping, home gardening, meat nomenclature, volume beef buying). The survey included a question concerning meat and poultry inspection. Approximately 70 percent of the respondents agreed with the statement that the government-inspected raw meat and poultry products they bought in the store could still have bacteria that could cause food poisoning. There was less ageement with this statement among the very young (respondents under 25 years) and the elderly (65 years and over). The less educated were also less inclined to agree with this statement.

It should be noted that this rather dramatic change in attitude regarding the presence of harmful bacteria might be attributed, in part, to a difference in question wording in the two different surveys—even though the main focus of both questions was the same. Whether the apparent increased awareness concerning government-inspected meat means more homemakers are using proper handling and preparation procedures is not known.

ECONOMIC IMPACTS OF A BAN ON SELECTED ANIMAL DRUGS★

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The complex food safety subject has become a highly publicized, controversial, and emotional. An increased awareness of and concern for food safety should result in reductions in some diseases and ultimately in medical costs. But these benefits probably can't be attained without some added costs. In the food safety area, these costs usually are the result of restrictions on the use of potentially hazardous additives or food handling practices. The issue is, therefore, one of weighing the consequences of the alternatives.

In recent years, restrictions on the use of certain antibacterial drugs in animal feeds have been proposed by the Food and Drug Administration (FDA). Other proposals may be in the offing. These drugs are currently approved for use in beef, swine, poultry, dairy, sheep, and other animal feeds to promote growth, improve feed efficiency, and prevent subclinical infections. But use of these drugs potentially poses a threat to human and, in some cases, animal health.

This threat to human health could come from the widespread and possibly indiscriminate use of penicillin and tetracycline antibiotics. Such use could contribute to organisms developing antibiotic resistance. As a result, the effectiveness of these and other antibiotics in the treatment of human and animal infectious diseases is lessened. Nitrofuran drugs—primarily fed to poultry—are believed to be cancer-causing, and their use for growth promotion and the treatment of diseases may, at some point, be prohibited. Sulfanethazine mixed with several other drugs is fed to hogs, and frequently dangerous residue levels of the drug are found in pork meat.

Economic Analysis

Livestock producers have expressed concern about the economic consequences likely to result from such restrictions on drug use. As a result, the U.S. Senate Committee on Agriculture, Nutrition and Forestry requested the USDA to examine the economic impacts of any bans on the low-level use of selected animal drugs.

Animal science data are essential to such a study. Without good data on the effects of drug use on feed efficiency,

★An ESCS publication providing more detail is available from the author. Ask for AER 414.

growth rates, mortality, and product condemnation rates, it is impossible to develop precise estimates of the economic effects resulting from a ban. The data used in this study were obtained from USDA and land grant university scientists, veterinarians, others in private business, and professional journals. Most estimates were extrapolated from small-scale test results since other data were not available. Most of the data were from tests conducted when the additives were first introduced in the 1950's and 1960's. In many instances there were wide variations in test results making estimates of the potential changes in production subject to error. Despite such difficulties, however, the best available scientific data were used for this study.

Because the available scientific evidence on the animal production effects of drug use are not conclusive, two levels of drug efficacy were assumed—moderate and high. Such a procedure, therefore, provides a range of potential outcomes that likely bracket what could reasonably be expected to occur.

At a moderate effectiveness level, a simultaneous ban on the use of the antibiotics, nitrofurans, and sulfanethazine in hog feed would initially result in reduced animal output. Output would be reduced about 8 percent for broilers, 6 percent for turkeys, and 5 percent for hogs. Beef production would increase a small amount—less than 1 percent. Feed utilization would decrease by a small amount. The production of milk, eggs, and lamb would not be measurably affected.

PROJECTED CHANGES IN FARM PRODUCTION AND FARM PRICES[1]

Animal species	Farm output	Farm prices	
	1 year after the ban	1 year after the ban	5 years after the ban
Fed beef cattle	-0.4%	+3.0%	+0.4%
Hogs	-4.9%	+0.2%	+0.2%
Broilers	-8.3%	+8.4%	+2.9%
Turkeys	-6.1%	+2.1%	+0.5%
Livestock		+2.9%	+0.5%

[1]Moderate efficacy assumption.

PROJECTED CHANGES IN CONSUMER PRICE INDEXES AND PER CAPITA CONSUMPTIONS[1]

Animal species	First year		Five years later	
	Price	Quantity	Price	Quantity
	percent from baseline			
Beef and veal	+2.7	-0.2	+0.0	+0.4
Pork	+4.5	-4.5	+1.0	-0.9
Poultry				
Broilers		-7.3		-1.6
Turkeys		-5.9		-2.5
Total	+10.3		+2.2	
Total meat, poultry and fish	+3.4	-3.0	+0.5	-0.6

[1]Moderate efficacy assumption.

Smaller output results in even greater relative changes in farm prices. Broiler prices would increase by 13 percent, turkeys by about 12 percent, hogs by 5 percent, and fed beef by 4 percent. These price and quantity changes would boost cash receipts for all livestock by 2.9 percent. Cash receipts for broilers would rise by 8 percent, cattle by 3 percent, and turkeys by 2 percent. Hog receipts would remain at about the same level.

Cash receipts for crops would decrease by a little over 1 percent with corn and soybeans down by 2 percent and feed ingredients down by 3 percent. Overall, net farm income would rise by $1.2 billion or almost 5 percent.

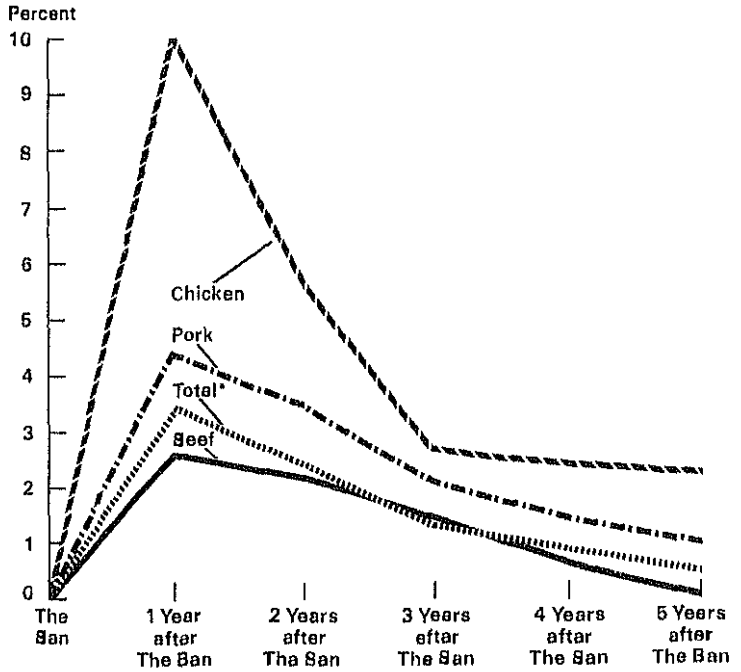
With higher receipts and lower total feed costs, the profitability of livestock production would improve. Producers would expand output. Five years after the drug prohibitions, output levels would be close to the projected base levels, with broilers and turkeys 2 to 3 percent below. The production adjustment would also move livestock prices close to projected base

levels along with cash receipts and net farm income. Consequently, the profit incentive would bring both the livestock and crop sectors back close to the projected base values.

Prosperity for agriculture is usually accompanied by higher prices for consumers. Initially, the Consumer Price Index (CPI) for poultry products would increase by 10 percent, pork by 4.5 percent, and beef by almost 3 percent. The overall impact on the food-at-home component of the CPI is 1.2 percent and the effect on the total CPI is an increase of 0.2 percent. Per capita consumption of livestock products could be down by 7 pounds (3 percent). But the reduced supplies and higher prices would likely be of short duration.

After 5 years, per capita consumption of red meat and poultry would be only a little over a pound below the projected base value as a result of increased production. Price indexes would return to about their projected levels. Poultry and pork prices would, however, continue to be above projected levels by 2 and 1 percent, respectively.

ANIMAL DRUG BAN: PREDICTED RISE IN CONSUMER PRICES



Conclusions

While the results of this study must be considered as merely suggestive, they do indicate that the economic system would generally be quite resilient to a more restrictive policy on animal drug use. Costs of production, and therefore consumer prices, would increase initially but because the farm-level demand for most livestock products is inelastic, farm prices would increase more than proportionally. As a result, total net revenue to farmers would be enhanced initially. The increased profitability would encourage farmers to expand output in subsequent years and by the fifth year following the restriction on animal drug use, production and prices of most affected species would recover to approximately their baseline levels.

These results do not take into account any changes in the structure of production agriculture that might accompany an animal drug ban. Increased risks associated with feeding poultry and livestock in confinement without the low level use of animal drugs could make such confinemen production systems less viabl and change the magnitude o these study results. On th other hand, the effect o changes in management prac tices that might occur i anticipation of or following th enactment of such rules wer not estimated either. Improve sanitation and pasture rotatio could reduce the magnitude o even the first-year effects a they are shown here.

A NOTE ON SURVEY RESEARCH

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How do consumers evaluate the performance of the food delivery system? What characteristics do they consider when they rate their satisfaction with food products and services? These questions require measures and analyses of consumer attitudes, preferences, and behavior. Analyzing consumer responses to such questions will, through the policy process, encourage a more satisfactory delivery of foods and services.

Surveys of consumer attitudes, opinions, and practices, such as those conducted by the USDA, are designed to help us learn more about consumer behavior. And the results help identify both successes and imperfections in the food delivery system.

But conducting and analyzing the results of such surveys is a difficult process since consumers are not always sure of their own reactions to certain changes. And they do not always communicate or want to communicate those reactions. In addition, researchers do not always ask the type of questions or use the type of approach that encourages consumers to state their concerns clearly.

After determining the objectives and hypotheses of the survey, specific questions are designed to elicit meaningful responses.

How questions are stated is important in interpreting results. For example, when consumers are asked how satisfied they are with beef, they may respond with any of five preselected answers—"alwayssatisfied,""almost always satisfied," "sometimes satisfied," "rarely satisfied," or "never satisfied." However, when consumers are asked to what extent they agree with the statement, "I am always satisfied with beef," their response may be interpreted quite differently. Agreeing slightly with the latter statement is, of course, different than being "almost always satisfied" with beef.

Once the questionnaire is drafted, it is tested so problems like those mentioned are noticed and corrected. In addition, "pretesting" gives a preliminary insight into what the results might indicate. Again, if the test results are confusing or indicate ambiguity, questions can be rewritten.

A sample of consumers is then selected according to prearranged criteria (region, marital status, income, age, or whatever). Interviews are often conducted by personal visits, though telephone surveys can be used. Difficulties often occur at this stage. Respondents may refuse to be interviewed or they may not be at home. Interviewers, too, differ in their ability to communicate with respondents.

Responses to the qustions are studied and interpreted. Averages can be computed to provide benchmark measures, but examining only averages and deviations from the average may mask important information. An analysis of the distribution of responses may identify characteristics of consumers or products. These characteristics may relate to problem areas or represent links between attitudes and actual behavior.

For example, suppose consumers were asked to rate their satisfaction with two products. The average of responses to each product could be the same, but the distributions could be quite different. The average response for both products was 2.3 on a 5-point scale. For product A, responses clustered at 1, "always satisfied," and 2, "almost always satisfied," with a few at 5, "never satisfied." Responses for product B concentrated at 2 and 3, "almost always satisfied" and "sometimes satisfied."

HYPOTHETICAL DISTRIBUTION OF RESPONSES FOR PROOUCT A

Degree of satisfaction		Product A number of *responses*	Weighted score
Always	1 .	20	20
Almost always	2 .	14	28
Sometimes	3	5	15
Rarely	4 . .	3	12
Never	5	8	40
Total		50	115
Average			2 3

HYPOTHETICAL DISTRIBUTION OF RESPONSES FOR PRODUCT B

Oegree of satisfaction		Product B number of responses	Weighted score
Always	1 .	6	6
Almost always	2	26	52
Sometimes	3	16	48
Rarely	4. .	1	4
Never	5. .	1	5
Total		50	115
Average			2.3

Another research approach compares responses to two or more questions. Do consumers rate product A in a similar way that they rate product B? Is there an association between socioeconomic groups and satisfaction with a product? For example, the distribution of responses indicates that there is little association between consumer satisfaction with product A and product B. Consumers that were always satisfied with product A were almost always satisfied with product B while consumers that were almost always satisfied with product A were sometimes satisfied with product B.

Satisfaction with a food product may bring to mind satisfaction with more than one attribute of that product. In turn, the satisfaction with the attributes or product characteristics may be related. Satisfaction with the taste of beef may be related to satisfaction with beef in general, but taste is also associated with fat content, tenderness, and freshness. Therefore, it becomes difficult to determine what characteristics are most important in evaluation of product performance.

Consumercharacteristics also affect responses. Region, income, family size, race, and other factors enter into the evaluation process. People have different tastes, preferences, prior experiences, and performance standards.

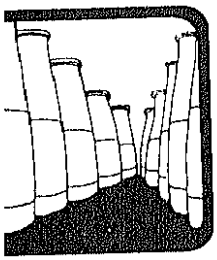
And of course, price and other market factors also may influence performance standards. Advertising builds expectations. Doctors, health professionals, and other sources of information on health and diet affect consumer concerns and, perhaps, behavior. Time and environmental pressures influence what is purchased and how those purchases are perceived.

A careful analysis of behavior would include some exploration of the effect of many of these characteristics on the attitude that is being measured.

No single approach, question, statistical technique, measurement scale, or number captures consumer attitudes or satisfaction. The marginal contribution of any one characteristic of a product or a population is difficult to distinguish from the contribution of other characteristics. These difficulties in measurement and interpretation demand clearly stated objectives and the use of a combination of appropriate measurement procedures. Each procedure, approach, and statistical technique provides a unique insight into consumer attitudes, behavior, and evaluation of market performance that might be useful in identifying problems, constraints, or elements of success in the food system.

DISTRIBUTION OF RESPONSES FOR PRODUCT A COMPARED WITH RESPONSES FOR PRODUCT B

		Product A Degree of Satisfaction					
Product B degree of satisfaction		1 Always	2 Almost Always	3 Sometimes	4 Rarely	5 Never	TOTAL
Always	1 . .	5	0	0	0	1	6
Almost always	2 . .	10	5	3	2	6	26
Sometimes	3 . .	4	9	2	0	1	16
Rarely	4 .	0	0	0	1	0	1
Never	5 .	1	0	0	0	0	1
Total		20	14	5	3	8	50



Perspectives

SDA FAMILY FOOD PLANS ND THEIR COSTS

· Betty Peterkin★
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USDA's family food plans ıve served for more than 40 ars as guides for estimating od needs and food costs for milies and population suboups. The food plans indicate ıantities of fooda of different pes (food groupa such as eat, poultry, fish, and milk, .eese, ice cream) that families ight buy or obtain in other ıys to provide nutritious diets , different levels of cost. The ans are revised periodically hen new information on utritional needs, food comɔsition, food consumption, ıd food prices becomes availɔle.

Current food plans are ɛveloped by USDA at four levs—thrifty, low-cost, moderateɔst, and liberal. Each suggests uantities of foods for men, omen, and children of ifferent ages and for pregnant nd nursing women.[1] A plan ɔr any family can be etermined by totaling quanties of foods for persons of the ex and age of family members. Costs can be estimated from food plans released by USDA each month.

Uses and Costs of Plans

The kinds and amounts of foods in the plans are used by USDA and others as the basis for guidance materials to help families select nutritious and affordable diets. Food components of the Bureau of Labor Statistics' budgets are based on the low-cost, moderate-cost, and liberal plans.[2] Camps and institutions use the plans to estimate food needs and evaluate food used.

USDA uses the cost for the thrifty food plan in setting the coupon allotment for the Food Stamp Program. Public and private assistance agencies use the costs for the various plans in establishing food cost standards for needy families and children in foster homes. Lawyers, courts, and the Internal Revenue Service use them to determine rates for care of dependents. Analysts use the plan costs in this research as a base for assumptions regarding the cost of a good diet for families of different size and composition.

Food Plan Development

The Consumer and Food Economics Institute of the Science and Education Administration (SEA) maintains the food plans. The Institute develops the plans, estimates their costs periodically, and interprets them in publications. The current food plans were developed in 1974-75 to meet nutritional goals based on the Recommended Dietary Allowances (RDA)

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[1]The publication "Fomily Food Budgeting for Good Meals and Good Nutrition," HG-94, presents the four food plans. "Food for the Family—A Cost-saving Plan," HG-209, provides 2 weeks' aample menus, shopping information, and recipes for the low-cost plan. Single copies are available from the Office of Governmental and Public Affairs, U.S. Department of Agriculture, Washington, D.C. 20250. For additional information about the food plans and their costs, contact the Consumer and Food Economics Institute, Science and Education Administration, U.S. Department of Agriculture, Hyattsville, MD 20782.

[2]"Three Standards for Living for an Urban Family of Four Persons," Spring 1967, USDL Bulletin No. 1570-5.

released in 1974 by the National Academy of Sciences—National Research Council (NAS-NRC). Food consumption and price data were used from USDA's 1965-66 Household Food Consumption Survey.

The amount that any household spends for food at home is probably similar to the cost for one of the four plans. Procedures for developing plans at each of the four cost levels are summarized below.

- Select the survey households that have food valued at or slightly above the general cost for the plan. These households were used as the basis for food consumption patterns and prices.
- Estimate the average nutritive value per pound of food in selected groups of foods as used by the survey households.
- Update food prices paid by survey households in 1965-66 to 1974 levels and compute the average price per pound of food in each food group.
- Estimate the quantities of food groups used (as-purchased basis) to prepare meals and snacks for a week for individuals in each of 12 sex-age categories and for pregnant and nursing women, using survey data on household use of food and the food intake of individuals. These quantities are the food consumption patterns used in food plan developments.

COST OF FOOD AT HOME FOR A WEEK*

	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan
FAMILIES				
Young couple	$26.00	$33.90	$42.60	$50.90
Elderly couple	23.30	30.30	37.50	44.70
Family of 4 with preschool children	36.60	47.20	59.00	70.60
Family with elementary school children	44.10	56.90	71.50	85.50
INDIVIDUALS				
Women				
20-54 years	10.60	13.80	17.20	20.50
55 years and over	9.60	12.50	15.40	18.20
Men				
20-54 years	13.00	17.00	21.50	25.80
55 years and over	11.60	15.00	18.70	22.40
Children				
1-2 years	5.90	7.50	9.20	11.00
3-5 years	7.10	8.90	11.10	13.30
6-8 years	9.10	11.60	14.60	17.40
9-11 years	11.40	14.50	18.20	21.80
Girls 12-19 years	10.90	13.80	17.10	20.40
Boys 12-14 years	12.20	15.40	19.30	23.10
15-19 years	13.40	17.10	21.50	25.80

*September 1978.

- Define upper and lower limits on amounts of each food group to be allowed in the plan.
- Define the nutritional goals for the plan based on the RDA and other nutritional guidelines.
- Determine a cost for the plan for each sex-age category to assure that there is an equitable distribution of "household" money for food among sex-age categories.
- Use a mathematical model, designed for food plan development, to determine the optimum plan (combination of food groups) for each sex-age category. The optimum plan provides nutritional goals within cost and quantity limits with a minimum of deviation from the food consumption pattern. Minimum change in food consumption is allowed, assuming that guides that disrupt food habits least are most likely to be followed. Other combinations of food groups arbitrarily selected to meet specifications might be more acceptable to some people.
- Interpret food plans in guidance materials for families and leaders.

Nutritional Quality

Each plan provides for a nutritionally good diet—one that meets the RDA's for nutrients for which adequate reliable food composition data are available. Each plan also provides the RDA for food energy and contains moderate amounts of fat and sugar.

The iron enrichment level for bread and flour proposed by the Food and Drug Administration (FDA) in 1973 was assumed in developing the plans. FDA announced earlier this year that the higher levels proposed would not be adopted.

With current enrichment levels, the plans for young children, teenage girls, and women of childbearing age do not meet the RDA for iron when average selections within food groups are made. However, these plans will meet the RDA for iron within cost limits when economical foods that are important sources of iron are selected frequently. Some of the foods are liver, heart, kidney, certain lean meats, dry beans, dry peas, dark-green vegetables, dried fruit, cereals with iron added, and molasses. With current enrichment levels and average selections within food groups assumed, plans for all sex-age categories provide iron in excess of the amount the NAS-NRC specifies as likely to be furnished by a balanced and varied diet.

Food plans developed to meet the RDA's would be expected to provide generous amounts of nutrients for most persons. This is because the basis for the RDA, according to the NAS-NRC, is such that "even if a person habitually consumes less than the recommended amounts of some nutrients, his diet is not necessarily inadequate for those nutrients."

Allowances are not specified by the NAS-NRC for some dietary factors. An example is linoleic acid, an essential fatty acid found in large concentrations in many oils that come from plants. Msrgarines, salad dressings, mayonnaise, and cooking oils contained in the food plans are usually made from one or more of these oils. Also, dietary fiber is necessary for the normal functioning of the intestinal tract. Good sources of fiber, such as fruits, vegetables, dried peas and beans, and whole-grain cereals, are a part of all food plans.

Cost Estimates

Costs cover foods for all meals and snacks for a week. They assume that all food is purchased at a retail outlet and prepared at home. Costs do not include additional expenses associated with meals and snacks eaten in restaurants.

Average prices paid for almost 2,000 different foods purchased by the survey households for a specific plan are used as the basis for the cost estimates. These average prices reflect the assortment of container sizes and brands, and the price level of the store of purchase for families with total food costs near the costs for the plan. SEA uses information from the Bureau of Labor Statistics to update the survey prices to estimate the costs for the food plans. They use retail prices of about 100 carefully defined foods from the time of the survey to the month of the estimate up to December 1977, and price indexes for detailed food categories since 1977.

Updated prices for foods in each food group are weighted by average quantities of foods used by the survey households to derive a price per unit—pound, quart, or dozen—for the group. Then the price per unit is multiplied by the number of units of food groups in the plan for each sex-age category and totaled to determine the current cost of the food in the plan for a week.

Futurs Food Plsns

Initial work is underway to revise the 1974-75 food plans. SEA's 1977-78 Nationwide Food Consumption Survey will provide new information on factors affecting variation in food consumption and food prices among households of different size and composition. Expanded data from this study will provide up-to-date data bases on food consumption and food prices and make possible the exploration of new methods for developing the plans.

More complete composition data on a wider variety of foods are forthcoming from the Nutrient Data Bank—a repository for food composition data in SEA. This additional food composition information will make possible more complete nutritional assessment of food in the plans. The nutritional goals used in the next revision of the food plans will take into account the Ninth Edition of the RDA to be released in 1979 and suggestions from USDA—including the Secretary's Human Nutritional Policy Committee—and other Federal agencies considering nutritional guidelines.

THE ROLE OF FOOD PRICES IN INFLATION

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On October 24, 1978, President Carter announced a new plan for voluntary wage and price guidelines designed to reduce inflation. The goals are to contain price increases in the economy generally to about 5¾ percent per year and to hold annual wage and benefit increases to no more than 7 percent.

Containing food price increases is considered crucial to the success of the program. Raw farm product prices will be monitored and an effort made to ensure that commodity price changes at the farm level are accurately reflected in retail prices.

Food price increases are highly visible since purchases are made weekly, sometimes daily, and food price changes can contribute significantly to the overall inflation psychology. Rapid food price increases are especially difficult for those with low and/or relatively fixed incomes. It is important, though, to keep the overall effect of food price inflation in historical perspective.

How Are Food Prices Monitored?

Retail food prices are monitored and reported monthly by the Department of Labor and released near the end of the subsequent month. For example, the Consumer Price Index (CPI) for December will be released near the end of January.

The food prices used to develop the CPI are collected for a wide variety of products, summarized, weighted by their relative importance, and reported in the form of index numbers for the major product groups.

The relative importance of food in the overall CPI is now about 18 percent—reflecting that, on the average, about 18 percent of the consumer dollar is spent on food. Consequently, a 10-percent increase in food prices in any one year results in an increase of 1.8 percentage points in the overall CPI, assuming the prices for all other items are unchanged.

The food category is subdivided into two major components: food-at-home with a 12.2 percent weight, and food-away-from-home with a 5½ percent weight.

Meat prices account for more than 32 percent of the overall food-at-home price index. This means that if retail meat prices go up by about 20 percent this year (as we now expect they will), they alone will contribute

CONTRIBUTION OF FOOD PRICES TO INFLATION

Year	Change in food prices	Contribution to overall inflation
	Percent	*Percentage points*
1950	—	—
1951	+11.1	+2.7
1952	+1.8	+.4
1953	-1.5	-.4
1954	-.2	-.1
1955	-1.4	-.3
1956	+.7	+.2
1957	+3.3	+.8
1958	+4.2	+1.0
1959	-1.6	-.4
1960	+1.0	+.2
1961	+1.3	+.3
1962	+.9	+.2
1963	+1.4	+.3
1964	+1.3	+.3
1965	+2.2	+.5
1966	+5.0	+1.2
1967	+.9	+.2
1968	+3.6	+.9
1969	+5 1	+1.2
1970	+6.5	+1.3
1971	+3.0	+.7
1972	+4.3	+1.0
1973	+14.6	+3.6
1974	+14.4	+3.6
1975	+8.5	+2.0
1976	+3.1	+.8
1977	+6.3	+1.6
1978 (P)	+8 to +10	+1.4 to 1.8

6½ percent to the overall food-at-home price increase. Other important product groups include fruits and vegetables (14.4 percent), dairy products (13.5 percent), and cereal and bakery products (12.5 percent). Often neglected as food categories, but increasingly important, are nonalcoholic beverages such as coffee, tea, and soft drinks (12.4 percent), and other prepared foods (8.5 percent).

What Does the Record Show?

Examining the historical year-to-year changes in retail food prices reveals that in 17 of the 27 years since 1950, food prices contributed less than 1 percentage point to the overall rate of inflation. In four of those years, 1953, 1954, 1955, and 1959, food prices actually reduced the overall rate of inflation in the economy.

It is important to note, however, that four of the largest year-to-year percentage changes in retail food prices occurred during the 5 years since 1972. Only in 1976 did food price increases contribute less than 1 percentage point to the overall inflation rate.

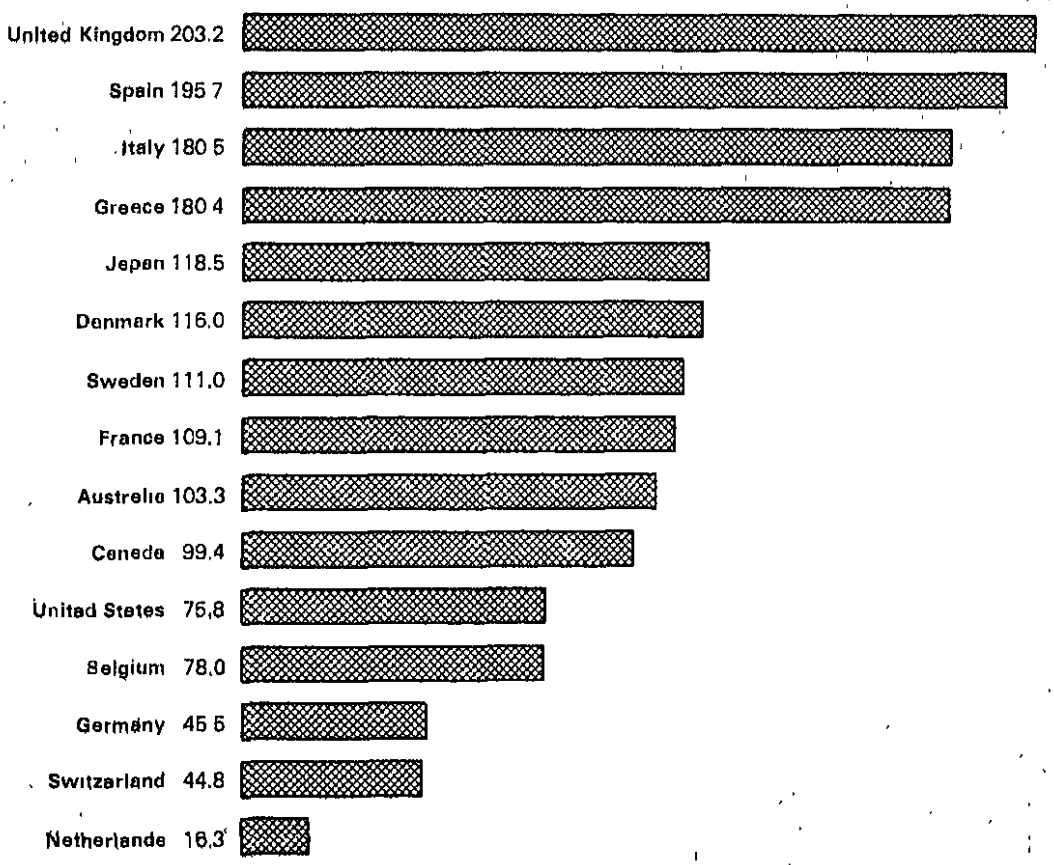
The inflationary effect of input prices during the years since 1965 cannot be ignored. Marketing accounts for approximately 60 percent of the retail cost of our domestically produced farm foods. And

RELATIVE IMPORTANCE OF FOOD GROUPS IN THE CONSUMER PRICE INOEX, DECEMBER 1977

	Consumer Price Index—All Urban	
	Percent	
Food	17.718	
Food at home	12 235	100.00
Cereals and bakery products	1.530	12.51
Meats, poultry, fish and eggs	3 943	32.22
Dairy products	1.654	13.52
Fruits and vegetables	1.759	14.38
Sugars and sweets	0.435	3.56
Fats and oils	0.360	2.94
Nonalcoholic beverages	1.513	12.36
Other prepared foods	1.041	8.51
Food away from home	5.483	

Source U.S. Department of Labor, Bureau of Labor Statistics.

PERCENTAGE INCREASES IN FOOD PRICES, 1970 THROUGH MARCH 1978



Source: OECD Main Economic Indicators, June 1978

increased energy costs have contributed significantly to the higher food prices in recent years. For example, from September 1973 to May 1974, food prices increased at a much faster rate (17.9 percent) than nonfood commodities (11.1 percent) but at a much slower rate than price increases for energy products (62.1 percent).

In addition, the recent volatility in prices of imported foods, fish, and other foods without a domestic farm product base have had a significant effect. These foods now account for about 19 percent of the food-at-home index. In the years since 1970, prices for these products have increased more than 145 percent. Retail prices for the domestically produced farm foods, on the other hand, have increased 58 percent. The effect of the increases in this category was most obvious in 1977 when food prices increased by 6.3 percent largely because of higher coffee prices.

Another way of looking at the overall impact of food price increases is to compare what has happened here in the United States with what is happening around the world. Since 1970, retail food prices in the United States have increased at a slower rate than in 10 of the 15 countries surveyed by USDA's Foreign Agricultural Service. Only West Germany, the Netherlands, Switzerland, and Belgium showed lower rates of increase, and their prices are well above those in the United States.

However, through March of 1978, five of the nations, including Japan and the United Kingdom, have shown smaller food price advances than the United States.

AN UPDATE ON SACCHARIN

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The National Academy of Sciences has released a study of the health risks of using saccharin as a sugar substitute. They have concluded that saccharin causes cancer in animals and promotes the cancer-causing effects of some other substances that cause cancer in rats.

When the Food and Drug Administration (FDA) attempted to ban the use of saccharin last year, Congress intervened and passed an 18-month moratorium. Congress also asked the National Academy of Sciences to do two reports. The second is due in early spring 1979 and will consider alternative food safety regulatory options for Congress and the FDA.

The FDA may not deem a food additive safe "if it is found to induce cancer when ingested by man or animal." When the Congressional moratorium expires on May 23, 1979, FDA will be required to resume its ban on saccharin unless Congress creates a special exception for saccharin or takes some other action.

Roughly one-quarter to one-third of Americans consume products containing saccharin, primarily in diet sodas. Children under 10 are judged to run the greatest risk of potential health problems because they have the greatest consumption of saccharin per body-weight of any age group.

The primary beneficiaries of the artificial sweetener are diabetics and persons trying to control their weight for personal or health-related reasons. Also, tooth decay may be reduced to the extent saccharin is substituted for refined sugar, particularly in soft drinks. The National Academy of Sciences concluded that there have been no objective studies assessing the benefits of artificial sweeteners.

Presently there are no other noncaloric or low calorie sweeteners approved for human consumption. The other product, cyclamate, was banned by FDA in 1970. Whether the industry can develop a replacement is not clear.

For a copy of the National Academy of Sciences *Report on Saccharin*, write to the Hearing Clerk, room 465, Park Lawn Building, Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, or call (301) 443-3285.

THE MOVE TO METRIC

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The metric system is edging (centimetering) its way into usage. Many consumers are already aware of labels, signs, tools, and instructions printed in both metric and inch-pound units. Wine bottles, serving instructions, soft drink containers, thermometers, and road signs are either available in metric units or expressed in dual measures.

The conversion to a different measurement system is meeting with some resistance. Consumers and businesses are familiar with the current system of ounces and pounds, inches and yards, and cups and quarts. And many have no desire to learn a new system.

Many major U.S. corporations have begun the conversion and are attempting to coincide it with changes in packaging, label design, and advertising. Unfortunately, converting machinery to metric is often costly. However, new machines will be built along metric lines as old ones wear out and need replacement.

A standard for home cooking and baking utensils has been developed that labels them in both inch-pound and metric units for use with recipes written in both systems. The words *cup* and *spoon* would not appear in association with metric units. Instead, liquid, dry, and small household measures will be expressed in milliliters and measuring devices will be developed according to the standard format.

First drafts of the metric/inch-pound versions of the Model State Packaging and Labeling Regulations were distributed at the July meeting of the National Conference on Weights and Measures. These model regulations are for the guidance of those wishing to adapt metric sizes and for State and local jurisdictions in developing laws and regulations.

Some of the food products for which metric-size versions were proposed at the Conference are berries and small fruits (milliliters), bread (grams), butter, oleomargarine and margarine (grams), flour and meal (kilograms), fluid milk products (milliliters or liters), and other milk products (kilograms). The drafts also proposed that if metric units are used, unit pricing in metric units also be used.

The greatest difficulty consumers will face is adjusting their notions of length, weight, and size. There may be confusion at first, but the measurements will become familiar as people work with them. The new concepts will take time to become part of common usage. But the conversion will go easier as consumers see more utensils, labels, and package sizes in both metric and inch-pound measures.

COMMON METRIC UNITS

	Name	Symbol	Approximate Size
Length	Meter	m	39½ inches
	Kilometer	km	0.6 mile
	Centimeter	cm	Width of a paper clip
	Millimeter	mm	Thickness of paper clip
Area	Hectare	ha	2½ acres
Weight	Gram	g	Weight of a paper clip
	Kilogram	kg	2.2 pounds
	Metric ton	t	Long ton (2240 pounds)
Volume	Liter	L	One quart and 2 ounces
	Milliliter	mL	1/5 teaspoon
Pressure	Kilopascal	kPa	Atmospheric pressure is about 100 kPa

Units of time and electricity will not change.

The Celsius temperature scale should be used, familiar points on which are:

	°C	°F
Freezing point of water	0	32
Boiling point of water	100	212
Normal body temperature	37	98.6
Comfortable room temperature	20-25	68-77

MEALS ON WHEELS

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The September issue of the *National Food Review* examined Government food programs available to senior citizens. However, a number of private volunteer programs also exist which assist elderly and incapacitated people. While the influence of these efforts on total food consumption is minimal, they are important for the many Americans who lack the mobility or financial capability to provide their own meals.

One such program is Meals-on-Wheels. This program will be celebrating its 25th anniversary of operation in the United States in 1979. The primary objective of this loose confederation of "kitchens" is to provide meals to people who are unable to serve themselves. A substantial portion of its recipients are over age 60, but some are younger people who cannot prepare their own meals.

Scope of Projects

Each Meals-on-Wheels project operates its own program and is generally affiliated with a religious or community organization. The total number of such Meals-on-Wheels units is difficult to estimate because there is no overall coordinating effort. The International Directory of Meals-on-Wheels has about 800 U.S. listings which, according to volunteer spokesmen, may be about half the number of total kitchens. Thus, it appears that there are between 1,500 and 2,000 Meals-on-Wheels kitchens in the United States.

Meals-on-Wheels and the Older Americans Act of 1965

Meals-on-Wheels is sometimes confused with home-delivered meals served under the Older Americans Act of 1965. The original purpose of the Act was to provide meals served in a single location, but has since been expanded to serve the elderly who cannot attend congregate settings. The 1978 amendments to the Act authorized $80 million to be spent on home-delivered meals, but dropped a provision emphasizing Meals-on-Wheels. However, the language of the legislation is such that Meals-on-Wheels kitchens, if they so desire, can qualify for some funds.

There are differences, however, between the two programs. Meals-on-Wheels is a private organization and relies on volunteer help. Meals served under the Older Americans Act are Government sponsored and financed. In addition, Meals-on-Wheels has no age requirement. Recipients under the Older Americans Act must be age 60 or over.

The number of people served varies from project to project. In a city, the typical area is about 20 blocks. Small towns and rural areas make up a significant portion of Meals-on-Wheels kitchen units. But since such areas have low denaity populations, kitchens in these areas are limited in the total number of people they serve. Overall, a random sample indicates that each unit serves between 30 and 50 recipients. Thus, it appears that between 50 and 100,000 incapacitated Americans are being served by this program.

Food Service

Meals-on-Wheels program recipients pay between $10 and $14 per week for 10 meals—one hot and one cold per day which are delivered at the same time. Each meal is prepared to meet nutrition requirements. Recipients pay for the cost of the food, but not administrative or delivery costs. The bulk of all meals served are purchased from caterers and in some instances from hospitals and other institutions. A number of Meals-on-Wheels kitchens, especially in the rural areas, still serve home-prepared foods. Some units provide specialized meals, such as kosher food and restricted diets.

Usually two volunteers make the deliveries—a driver and a jumper who actually delivers the meals. In addition to delivering meals, volunteers often look after the overall needs of the elderly.

USDA AWARDS COMPETITIVE RESEARCH GRANTS

USDA has announced that some 190 research grants will be awarded under a $14.4 million competitive grant program.

The grants, which provide for research in plant science and human nutrition, are being made through the Competitive Research Grants Office in the USDA's Science and Education Administration.

The competitive grants program was established by Congress last year to increase the understanding of food production and human nutrition through new basic research and to accelerate existing research.

The grants for research in the area of human nutrition were awarded in four sets.

The first group of human nutrition grants include: University of Minnesota, St. Paul, $105,000 for protein and calorie requirement studies during human aging; South Dakota State University, Brookings, $90,000 for selenium studies; Iowa State University, Ames, $150,000 for vitamin A research; Johns Hopkins University, Baltimore, Md., $200,000 for B vitamin studies; University of Georgia, Athens, $80,000 for study of television's impact on children's food preferences and $110,00 for the study of obesity; University of Missouri, Columbia, $175,000 for dietary fiber research; Texas A&M University, College Station, $100,000 for fatty acid metabolism research and $55,000 to study food choice among the aged; and Ohio State University, Wooster, $150,000 for selenium deficiency studies.

The second group includes grants to the University of California-Davis, $95,000 to develop a better method for measuring one of the B vitamins; Massachusetts Institute of Technology, Boston, $135,000 to study the vitamin A requirements in children; University of Illinois, $100,000 to investigate fatty acids and disease immunity; Univeraity of Florida, $190,000 to investigate the nutritional status of low-income people; Cornell Univeristy, $100,000 to study the effect of environmental change on food choice; The Pennsylvania State Unviersity, $75,000 to study the effect of nutrition knowledge on food choice; University of Colorado Medical Center, Denver, $65,000 for a study of trace elements in low-income preschool children; University of Montana, Missoula, $60,000 to study the effect of TV commercials on the eating habits of children; Massachusetts Institute of Technology, $250,000 to study amino acids in relation to human dietary requirements.

On September 20, the Secretary announced the third group of awards. Awards made for research in the area of human nutrition include:

The University of Illinois, $125,000 for studies of preschool children's food preference development, and $85,000 to research the potential digestibility and nutritive value of dietary fiber; Health Center, University of Texas, Houston, $135,000 to study selenium requirements in human diets; University of California-Los Angeles, $160,000 for zinc, vitamin A, copper, and nucleic acid studies of pregnant women and their offspring; Virginia Polytechnic Institute and State University, $155,000 to study the role of zinc in women during and after pregnancy, and $50,000 to study the risk factors associated with obesity among infants; University of Kentucky, Lexington, $150,000 for research on a plant compound called phytate and various trace elements as related to the human diet.

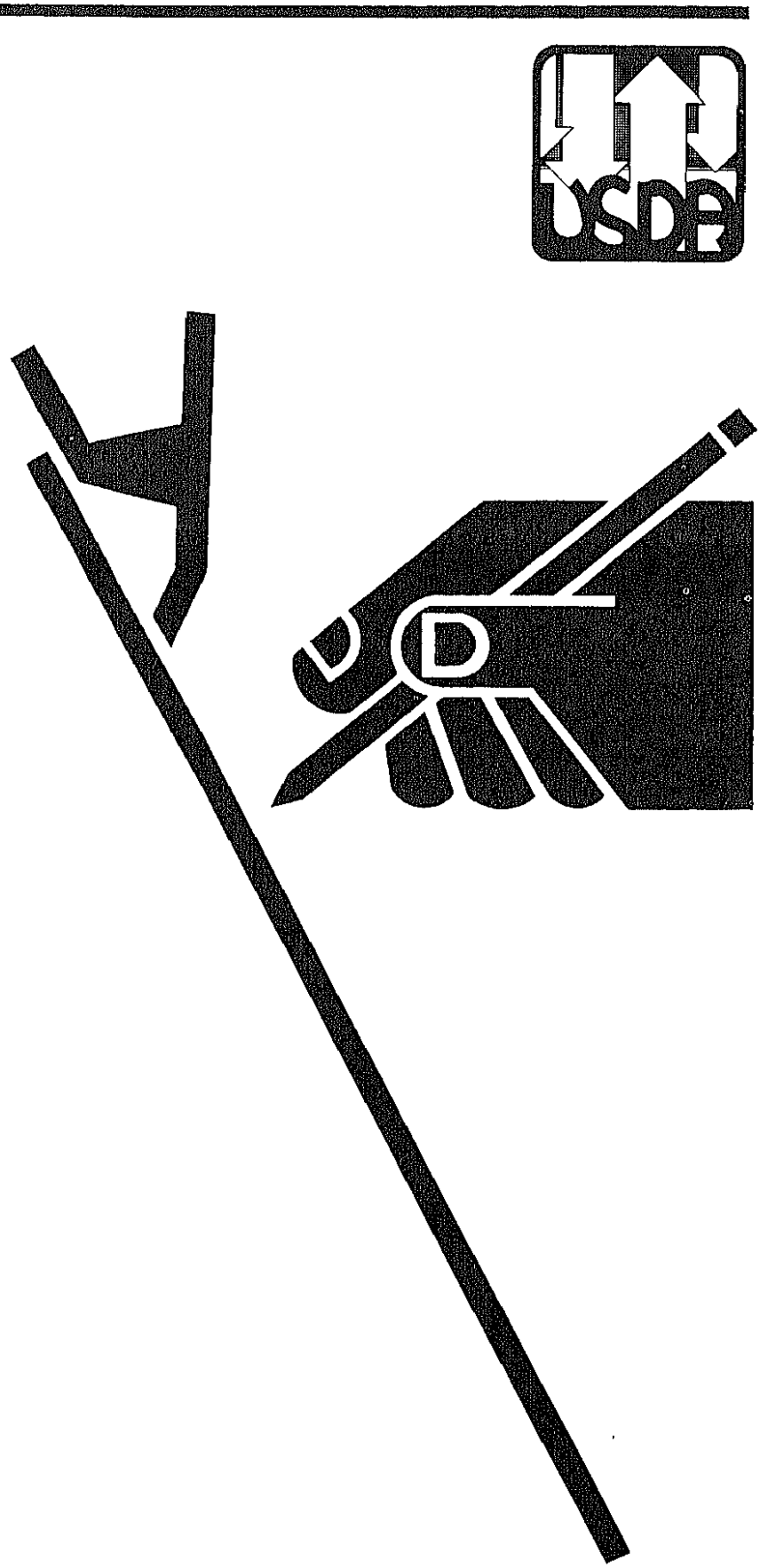
Additional awards were made to Iowa State University, Ames, $95,000 for studies on the effects of dietary fat and cholesterol, and $160,000 for a study of food selection patterns; University of North Dakota, Grand Forks, $130,000 for research into the role of choline and methionine in the human diet; Cornell University, $130,000 for riboflavin studies; Vanderbilt University, Nashville, Tn., $150,000 for research of carnitine to see if it is essential for human nutrition; Syracuse University, Syracuse, N.Y., $49,000 for human iron requirement studies; Auburn University, Auburn, Ala., $130,000 to investigate what influences zinc absorption in infants; Fort Wayne State Hospital and Training Center, $110,000 for research with vitamin B; and Harvard University, $140,000 for ressarch on folic acid

requirements during pregnancy.

In the final set there were three grants for human nutrition research. Marketing Science Institute, Cambridge, Mass., cooperative with the Community Nutrition Institute, Washington, D.C., $175,000 for investigation of factors influencing people's choice of foods; Johns Hopkins University, Baltimore, Md., $136,000 to determine the protein requirements of premature infants and convalescing children; and Webb Associates, Inc., Yellow Springs, Ohio, $250,000 for studies of overweight development in Americans.

Grants Program for 1979

The competitive grant program has been extended for fiscal year 1979. Basic research grants will be considered in selected areas of plant biology, and in certain areas of human nutrition. The human nutrition grants will be awarded for studies that possess exceptional opportunities for fundamental scientific discovery and for contributing, in the long run, to applied research and development vitally needed on important food and nutrition problems. Again this year the nutrition focus will be on human requirements for nutrients and behavioral factors affecting food preferences and buying habits. Proposals are due on January 12, 1979 for the behavioral factors studies and on February 16, 1979 for those dealing with nutrient requirements. Send proposals to: Research Competitive Grants Office, USDA/SEA, Rosslyn Commonwealth Building, Room 103, 1300 Wilson Boulevard Arlington, Va. 22209



USDA Actions

FOOD SAFETY AND QUALITY

More Nutritious Potato Available

A new potato variety that is 50 percent higher in vitamin C and 15 to 20 percent higher in protein than Russet Burbank, America's most popular potato variety, is available to consumers this year.

The new potato variety, called Butte, was developed by Joseph J. Pavek, a plant geneticist with USDA's Science and Education Administration (SEA).

Butte has excellent cooking qualities, makes a good french fry, and lasts longer on the shelf. It closely resembles Russet Burbank and is generally adapted to the same growing areas throughout the Pacific Northwest.

Last year, the first season Butte was offered for production, growers planted only 300 acres. This year, they planted over 3,000 acres.

Proposed Revision of Grade Standards for Frozen and Waxed Green Beans

USDA has proposed a revision of its grade standards for frozen and waxed green beans to eliminate dual grade names for the same quality of products and redefine the allowance for different kinds of product defects.

The proposals retain U.S. grades A, B, and C, but the alternate grade names, Fancy, Choice and Standard, would be dropped to make grade names less confusing to consumers.

Current grade standards, which have been in effect since May 1975, allow tolerances for defective beans, and allow all types of defects to be grouped into a single category. The proposal calls for two separate categories of defects with separate tolerances. One category would be for maturity—overmature beans are considered defective. The second would include all other types of defects—mechanical damage, vines, stems, tough strings, and insect injury.

The proposal would also provide for two kinds of pack—regular frozen pack and multi-blanch pack. The regular frozen beans are the type consumers find in the supermarkets. Multi-blanched beans are partially cooked for special purposes such as frozen dinners.

The current standards downgrade multi-blanched beans because of dullness in color, even though they are intentionally precooked. The proposed standards would correct this deficiency.

Regulatory Action on Sodium Nitrite

USDA has assured farmers and livestock producers that final regulatory action dealing with the use of sodium nitrite to cure meat products is not imminent. USDA and/or the Food and Drug Administration will not seek to stop nitrite usage as soon as possible.

Nitrites have been used for many years to add taste and color and prevent the formation of botulism (a form of food poisoning) in many meat and fish products.

Research now shows that nitrites can induce cancer in laboratory animals, so any Government action must strike a careful balance between competing health risks. There will be opportunity for considered, sensible, and useful analysis and debate prior to final action.

A recently completed survey of 100 swine producers in six States supported the industry contention that sulfa residues are not merely the result of drug misuse and poor farm management.

Sulfanamide contamination was found in finishing feeds of farms which had produced hogs with reaiduea above the tolerance level, and those which had not, and it was found both in commercially mixed finishing feeds and in those mixed on the farm.

There is a program of continued research to find the causes of residues, which cause severe allergic reactions in some humans, and to determine what must be done to avoid them. The research program is part of USDA's joint campaign with the pork industry to eliminate the residues, while preaerving the use of sulfa in feed to prevent various swine diseases.

Institutional Meat Purchase Specifications Amended

Specifications for meat used by volume buyers and sellers have been changed to cover some fresh pork and beef items not previously included. Some minor technical and editorial changes also have been made to clarify meat purchase specifications and to reflect industry practices.

The institutional meat purchaae specificationa are developed by the USDA's Food Safety and Quality Service in cooperation with the meat industry. These specifications are used in the Department's meat acceptance service. This is a voluntary program under which Federal graders, on request and for a fee, examine products bought in large quantities to asaure that these products meet contract terms.

Proposal Withdrawn To Allow Use of Milk Albuminate in Ssusage

USDA has withdrawn a proposal to amend the Federal meat inspection regulations to allow the use of "milk albuminate" in certain sausage products.

A majority of the comments received on the proposal (published in the February 15, 1977, Federal Register) opposed it on the basis that "milk albuminate" was an incorrect name for this dairy product. In addition, the U.S. Food and Drug Adminiatration recently ruled that "albumin/caseinate" was a more descriptive term for this type of product. But even "albumin/caseinate" is a very general term, and could also apply to other products with differing compoaitions.

Therefore, the proposal has been withdrawn to avoid confusion, and USDA meat inspection officials will be atudying the broader queation of whether any albumin/caseinate product should be used in sausage products.

Gardening in the City

In 1977, Congress appropriated $1.5 million of the Expanded Food and Nutrition Education Program funds for an urban gardening program in aix major metropolitan cities. The program was aimed at improving the general nutrition of low-income families in New York, Los Angeles, Chicago, Houston, Detroit, and Philadelphia by helping them establiah and maintain their own vegetable gardens.

In 1978, funding was expanded to $3 million with 10 additional cities participating in the program—Atlanta, Baltimore, Boaton, Cleveland, Jacksonville, Memphis, Milwaukee, Newark, New Orleans, and St. Louis.

Federal funds for the program can be spent only for educational purposes and staffing. Seeds, tools, top soil, fencing, and other garden materials must be provided by city, State, private, and civic organizations. The funds are administered by the Cooperative Extension Services at the land grant universities in the States where the cities are located.

The gardeners have planted everything from asparagus to zucchini on rooftops and in vacant lots, containers, flower boxes, and backyards. The garden assistants and program leaders have conducted workshops and onsite demonstrations. Additional information in the form of fact sheets, newsletters, and slide-taps shows has been another staple of the program. Program staff also have answered many queations by telephone "hot lines."

For fiscal 1979, $3 million were included in the supplemental agriculture appropriation to be used for the urban gardening program. To date, the program not only has helped improve low-income family diets, but also saved money, provided an opportunity for outdoor recreation, and brought neighbors together.

NUTRITION EDUCATION AND RESEARCH

USDA To Develop Nutrition Messages for Children

USDA has announced that it will develop a pilot multimedia campaign, including television spots, to inform children about good dietary practices.

The effort, costing $550,000, will be conducted by USDA's Food and Nutrition Service, which administers the school lunch and breakfast programs. This will be the first major Federal government study to explore how nutritional messages in various media can help children improve their dietary practices.

USDA is seeking proposals from advertising agencies, universities, research firms, and others to do research needed for the development of messages, strategies, and materials.

The preliminary testing of the mass media materials began this school year in preparation for testing them on a community-wide basis in the 1979-80 school year.

Representatives of the Children's Television Workshop, the three major television networks, the advertising industry, the food industry, public interest groups, and nutrition educators have helped in developing research guidelines for the campaign.

The USDA's messages will be targeted at children ages 5 to 12 and will encourage them to eat breakfast, nutritious snacks, and more fruits and vegetables.

States Get Nutrition Education and Training Funds

USDA has announced that 47 States have received $24.8 million in nutrition education and training funds for fiscal year 1978 from a Department total of $26.2 million available for State use.

The funds are to be used by the States to train children, teachers, and school food service personnel in the vital relationship between nutrition, good food, and health.

The grants enabled States to begin operating the program this summer. The advance funds were used to hire State coordinators and to assess each State's nutrition education and training needs.

The nutrition education and training program was enacted last November. Through it, children in the school meal programs and child care food programs will learn about the nutritional value of food; teachers will be instructed in nutrition principles; and school food service workers will be trained in food service management, nutrition, menu planning, food procurement, and food preparation.

Perspectives on Food and Nutrition Policy

In recent months, USDA has increased its emphasis on food issues. These discussions will likely have an impact on the food and nutrition research agenda and on the policymaking process. Recently, the Secretary of Agriculture appointed two leaders in the field of food and nutrition to high-level positions: Ms. Audrey Tittle Cross, Nutrition Coordinator for USDA, and Dr. D. Mark Hegsted, Director of USDA's Human Nutrition Center. Their perspectives on important comtemporary nutrition issues provide an indication of what issues are likely to be "center stage." Here are some excerpts from an interview with Ms. Cross and Dr. Hegsted.

Why is there intense concern over human nutrition and the food we eat?

Cross: To answer that question, I think we have to look back to the civil rights movement when concern over the existence of hunger and malnutrition in this country began. From that awareness arose concern with the scarcity and inadequacy of distributing our food supplies among certain populations. The scientific community responded by beginning investigations of the extent of malnutrition. At that point, research interests in nutrition began to take a different focus. Prior research had focused almost solely on nutrient requirements. The national interest in hunger began to focus research concerns on people and how they ate.

In the process of looking at malnutrition over those 10 years, our affluence as a nation increased and we began to discover not only problems of undernutrition, but also the problems of overnutrition. And

that is where we are today. Scientists are not only looking at problems of food scarcity and inequitable distribution, but also the role of nutrition in positive health and prevention of disease.

There is now a great deal of interest in funding research in the area of human nutrition regarding nutrient needs, food composition, food choices to meet nutrient needs, and dissemination of information to the American public. USDA was delegated the primary responsibility within Government for these nutrition activities.

Why is there so much controversy in human nutrition?

Hegsted: I think it's not much different than the other areas of science, but it's an issue that the public is a lot more interested in. As most researchers know, science never proves anything; the scientific method mainly disproves. I think it's a sad fact that a lot of researchers never really want to deal with the decisionmaking process; they prefer to keep on trying to discover additional facts. But there comes a time when decisions have to be made, and to a considerable degree, they involve judgment. That will always be true. But I think you have to recognize that there are commercial interests involved in human nutrition.

I really don't think nutrition is in any more of a state of disagreement than most other sciences, but only that it's a more relevant topic.

What's the most significant problem in human nutrition?

Cross: I can only give you an opinion. One of the things I hope our nutrition center will focus on is the behavioral and sociological influences of human nutrition. I'm concerned that consumers are not making informed decisions in the marketplace. They don't have adequate knowledge of nutrition or of the nutrient value of foods. Food doesn't come as vitamin A or vitamin C. It comes, instead, as a tomato or an orange.

Behavior in the marketplace is being influenced by information that isn't based on the best scientific knowledge. For example, companies that are legitimately trying to sponsor their products and to encourage consumer selection of those products are giving only their point of view. There's no counterview or additional information to tell consumers from what source they might get a particular nutrient and what combination of foods they need to eat to meet their nutrient needs. I'm hoping that one of the things we can look at through research is how to better help the consumer in the marketplace.

Hegsted: There's always been an assumption that the school lunch program ought to serve the dual purpose of feeding children and teaching them how to eat. Certainly there's been a lot of talk about that. With Congressional interest in nutrition education, it's obvious now that there will be much more emphasis in that area. But there are some pretty serious questions still unanswered. One is, do we really know how to influence behavior? Most of the assumption in the past has been that if you teach people the facts about nutrition, they will respond. But we know that people keep smoking even though they know they shouldn't. Obviously they won't eat just for nutrition. It's easy to make a nutritionally adequate diet that nobody will eat. There has to be some research in educational methods and behavioral modification.

What are the good things about the way Americans eat?

Hegsted: There are a lot of good things about the way Americans eat. If you compare the disease patterns of the 1930's, obviously you'll see that most people are better off and happier. Certainly it's much better to die of overnutrition than undernutrition. I don't think there's any doubt about that. Being hungry is worse than being fat. Although there are many ways to criticize our diet, we are very fortunate people compared to most, and that ought to be emphasized.

What's the biggest problem in human nutrition? Is it obesity, cholesterol, undernutrition?

Hegsted: That's a matter of judgment. Half of Americans have heart disease. About a quarter of them die of cancer. About 10 percent of adults have high blood pressure. It's estimated that 5 percent of Americans have diabetes, and

if it keeps going, it will be 10 percent before very long. If that's the appropriate classification, then the risk factors of heart disease are our primary problems. But most people would rather have a heart attack than have cancer. If you look at the budgets of the cancer institute and the heart institute, you'll find that the cancer budget is higher primarily for that reason.

I would say that in the past, that's the way people have tried to evaluate the relative importance of nutrition when related to disease. I would also say that I think there is some overemphasis on obesity. That is certainly a very prevalent problem, but the risk associated with modest degrees of obesity is not very great in adults. If you compare the data on obesity versus the data of levels of serum cholesterol, you'll find it much worse to have the high cholesterol level than to be a little overweight.

Are most health problems diet-related?

Hegsted: There isn't any clear answer to that. Nutrition does play a part in many chronic diseases, but it's not the causative factor. Still, it is a factor. Genetics are very important, but can be modified by diet. So you would have to consider every disease individually. But the fact is that most major health problems of the American public are diet-related.

Cross: One of the reasons I think it's important that human nutrition research will be conducted by USDA is that research at the Department of Health, Education and Welfare (HEW) is conducted by physicians who still tend to be curative rather than prevention oriented. I think that USDA can have a much more preventive focus that also integrates the role of food production and marketing. Hopefully, HEW will join us in doing some positive and preventive things in the whole health care system.

Are food additives and preservatives hazardous to health?

Hegsted: That depends upon which food additive and which preservative. I judge the American diet to be as safe in terms of toxins and carcinogens as any available in the world. I think the area of additives and preservatives is one area where we have done a pretty good job. And it's certainly an area of active concern. We don't have an absolute capacity to measure how risky anything really is, so we ought to be conservative. The best policy is to limit those additives and preservatives to those foods where they are necessary or useful. But I think there's overconcern about additives and materials of that kind among the American public.

Wheat Research and Nutrition Education Order To Be Developed

USDA has announced procedures for developing a wheat and wheat foods research and nutrition education order.

The order is authorized under the Wheat and Wheat Foods Research and Nutrition Education Act, signed into law September 29, 1977. It is intended to improve quality and make efficient use of American wheat for food purposes.

The rules set procedures for giving all interested persons a chance to have their views considered during various steps in developing an order—from submission of proposals and a public hearing to a final decision. If hearing evidence supports an order, it would be voted on by end-product users of wheat, primarily wholesale bakers.

Any approved program would be financed by assessments of up to 5 cents per hundredweight on the processed wheat that end-product users purchase. Certain end-product users, including retail bakers, would be exempt from paying the assessments. End-product users required to pay assessments, but who do not wish to support the program, could get refunds upon request.

The order, if approved, would be administered by a 20-member Wheat Industry Council. Membership would be divided equally among producers, processors, end-product users, and consumers.

FOOD ASSISTANCE

Food Stamp Allotment To Increase January 1

Low-income families will receive a cost-of-living increase in their food stamp allotments starting January 1.

The increase, prescribed by law, reflects the rise in the cost of food from March through September 1978. For a family of four, this translates into a 5.2-percent increase in the value of their food stamps.

Between January and July 1979, States will be phasing in new allotments and income eligibility limits required by the Food Stamp Act of 1977. As a result, some States will be issuing food stamps under both old and new program rules while this transition is taking place.

Under the program rules being phased out, a family of four with no net income will have their allotment increased on January 1 from the present $182 to $192. The maximum net monthly income a family of four may have and still be eligible for food stamps will increase from $607 to $640.

Under new program rules, a family of four with no net income will receive a $191 food stamp allotment. The net monthly income limit for a four-person food stamp family will be $542, or about $6,500 per year. This is nearly $1,200 a year lower than the net income limits under the old program rules.

USDA Conducts Food Stamp Demonstration Project

The Department of Agriculture will have authority to conduct demonstration, research, and evaluation projects to increase the efficiency of the food stamp program and improve delivery of food stamp benefits to eligible households, under regulations announced recently.

Regulations were also announced for a demonstration project which assures Supplementary Security Income (SSI) recipients in California continued supplemental food benefits. This project, known as the California SSI Conversion Project, began operation on September 5. SSI is a Federal program that pays monthly benefits to people in financial need who are age 65 or older, blind, or disabled.

Previously, SSI recipients in California had received the cash value of their food stamp bonus as part of their State SSI check. States have the option to supplement such Federal benefits, and based on the level of these payments, are designated as "food stamp cash-out States."

As of September 1, California ceased to be a cash-out State; thus SSI households there became eligible to participate in the food stamp program.

The demonstration project will use a State-centralized automation system and computerized SSI information to determine the food stamp eligibility of SSI recipients. There will be no need for individual interviews.

In addition, the demonstration project will mark the first application in the United States of some of the principal features of the Food Stamp Act of 1977—the elimination of the food stamp purchase requirement and supplemental income and deduction standards.

The fact that several hundred thousand SSI recipients in California are just now becoming eligible for food stamps provides an unusual opportunity to test a streamlined system of delivering food stamp benefits to the aged, blind, and disabled. Computer tapes containing information about each SSI household can be used to certify these persons without requiring them to travel to and wait at food stamp offices. This may allow USDA to determine the extent to which the purchase requirement, and the need for SSI recipients to go to food stamp offices to apply, have hindered participation by these persons.

The demonstration project also should avert potentially severe administrative problems that could have arisen in California if these several hundred thousand SSI recipients had to be individually interviewed and certified in local food stamp offices under current program rules.

Approximately 600,000 households would have been eligible to apply for and receive food stamp benefits under current program rules. This sudden influx of new program applicants into local offices could have caused hardships not only for aged, blind, and disabled SSI recipients but also for all other applicants who might have experienced major delays in receiving benefits.

USDA Conducting Studies of School Lunch Program

Four wide-ranging studies

are now underway to assess the impact of USDA's interim changes in school lunch meal patterns.

Results of the studies will guide USDA in writing final regulations for meal requirements in the school lunch program.

The major study involves a random sample of some 400 schools and will be the largest controlled study of the lunch program ever undertaken.

USDA issued interim regulations on August 22, 1978 to authorize new meal patterns for school lunches. The regulations were initially proposed in September 1977 and revised to reflect public comments. The changes will update the Type A school lunch meal patterns in line with new knowledge about the nutritional needs of children. The new meal patterns will also conform to the 1974 revisions of the Recommended Dietary Allowances (RDA) issued by the National Academy of Sciences.

The interim school lunch patterns vary minimum serving sizes according to age and grade groups, permit some choice in portion sizes for children over 12, and require schools to serve lunch to children under 5 in two sittings. The changes also affect the types of milk served and give schools more options in meeting bread requirements.

The regulations also address questions of food appeal, plate waste, student and parent involvement in the school lunch program, and current dietary concerns, including the use of fat, sugar, and salt served in school lunches.

The interim regulations authorize voluntary field testing of the proposed changes by all schools. Schools that want to participate in the voluntary field test must first obtain approval from the State administering agency, and States are responsible for overseeing the test and providing guidance to schools.

From the field test and from the studies announced on September 29, USDA will determine if the proposed changes are feasible and desirable.

In addition to the major study of a controlled sample of about 400 schools, the studies include three demonstration projects now underway at schools that volunteered to participate. All studies are expected to be completed in the spring of 1979.

The studies are:

- Determination of the effect of changes in the school lunch meal pattern requirements. The purpose of this study is to learn how proposed changes in the school lunch meal patterns will affect student participation; food consumption; food cost; parent, faculty, and student opinions of the lunch program; and program administration and operation.
  Participating schools used the current Type A pattern early this fall and then adopted the interim pattern after a training session. Test schools began to use the interim meal pattern in November.
- Demonstration projects involving students, faculty, and parents in the lunch program.
- Demonstration projects for controlling sugar, fat, and salt in school lunches.
  These projects will compare two models for controlling the amount of sugar, fat, and salt in school lunches. During the study, food service workers will be given training in food purchasing, recipe revision, menu planning, and food production and preparation.
  The study will produce the first collection of data on the amount of sugar and sodium present in school lunches. Laboratory analyses for fat, sodium, sugar, carbohydrate, and protein will be performed on a "representative lunch" each day from each school participating in the study.
- Demonstration projects for providing one-third of the RDA for food energy in school lunches.
  Current and proposed meal patterns provide less than one-third of the RDA for energy. This is done because USDA believes that many children do not need one-third of the RDA for energy at lunch. Rather, foods eaten at other meals and for snacks frequently provide more than two-thirds of their daily energy needs. However, because some children, especially those who are growing rapidly or who come from low-income families, may rely on lunch for one-third of their food energy needs, USDA is studying how

effective second helpings of any item will be in providing one-third of the RDA for food energy.
The study will also show how the use of second helpings for energy affects food choices, student participation, cost, and administration.

School Food Programs Take Part in HEW Civil Rights Survey

The 59,000 public schools participating in the October 1978 civil rights survey conducted by the Department of Health, Education and Welfare were required to collect racial and ethnic data on children who applied for free and reduced price meals in the school lunch and breakfast programs, under interim regulations issued by USDA.

The purpose of the data was to determine if all children have the opportunity to benefit equally from the school lunch and breakfast programs and to assure that free and reduced-price lunches and breakfasts are made available without regard to race, color, or national origin.

The data collection was required to comply with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the grounds of race, color, or national origin in programs receiving Federal assistance.

To comply with regulations that implement the Act, USDA required that these data be collected in survey schools. The information collected is confidential and will be used only to assure that all children are receiving benefits on an equitable basis.

Under the interim regulations, States may permit schools to collect these data by requesting parents to voluntarily indicate their child's racial and ethnic identity on applications for free and reduced-price meals.

It was stressed that parents' response to this question is purely voluntary, and failure to provide this information will not affect eligibility for program benefits. Schools may also develop alternate methods to collect racial and ethnic data on children.

Schools Given Option on Donated Foods

Schools may now refuse up to 20 percent of the foods offered by USDA for use in their school lunch program.

The regulations have been amended to be more responsive to school needs and preferences. The change will allow schools to substitute other foods given to the States by USDA to the extent that they are available during the school year.

USDA published proposed regulations on June 20, and requested public comment. The 37 comments received were from school districts and State agencies responsible for school food distribution. These comments were considered in shaping final regulations.

Under the new regulations, States were required to send a letter to schools by September 15 notifying them of their right to refuse donated foods and to receive other foods available to the State during the school year. Beginning with the 1979 school year, States will notify schools prior to the beginning of each school year. In addition, States and schools are required to maintain records of the amounts and values of all foods refused by schools.

Interim Regulations Issued for State Administrative Expense Fund

On August 21, USDA announced interim regulations governing State administrative expense (SAE) funds for the child nutrition programs.

SAE funds are Federal payments made to States to administer child nutrition programs, which include the school lunch and breakfast programs, the special milk program, the child care food program, and the food service equipment assistance program. In fiscal year 1978, USDA allocated $19.2 million in SAE funds to the States.

These interim regulations implement provisions of Public Law 95-166, enacted in November 1977, and enable USDA to give stronger support to the States and help them provide better administration for these vital programs.

The provisions in these interim regulations include the following:

- For fiscal years 1979 and 1980, an initial allocation of SAE funds to each State equal to 1 percent of the child nutrition funds expended in a State in fiscal years 1977 and 1978, respectively.
- For fiscal year 1978, each State was allocated 1 percent of the child nutrition funds expended in that State in fiscal year 1976.
- States are required to

contribute no less in fiscal years 1978, 1979, and 1980 for administering child nutrition programs than they did in fiscal year 1977. No SAE funds will be allocated to any State unless it maintains at least the 1977 level of financial support.

States that assume administration of child nutrition programs in private schools previously administered by USDA will receive increased funds for the additional workload.

USDA Publishes Special Milk Program Evaluation

Legislation requiring schools to offer free milk to low-income children was a major factor leading 4,000 to 8,000 schools to stop participating in the special milk program, according to a new USDA study.

The study also indicates that the availability of the milk program has little adverse impact on school or student participation in the school lunch program.

The study, based on data collected in 1975, represents the most comprehensive analysis conducted of the special milk program which provides milk at low cost or free to children in participating schools and in nonprofit child care institutions.

Public Law 93-150, enacted by Congress in 1973, required schools to make milk available free to children eligible for free meals in all schools and institutions participating in the special milk program. The free milk provision changed the milk program from a simple subsidy program to one that was administratively more complex.

At lunch time, schools participating in both the milk program and the national school lunch program had to make free milk available to eligible students in addition to the half pint served under the lunch program. The study cited two major reasons given by schools for dropping the milk program after this provision was enacted:

- Additional work, time, and cost to serve free milk under both the school lunch and milk programs.
- Difficulty in preventing overt identification of free milk recipients.

The free milk legislation was modified last year by Public Law 95-166, allowing eligible children to receive free milk only when the milk program operates at times other than periods during which federally subsidized meals are offered.

A principal purpose of this change, in effect since February 1, 1978, was to relieve some of the administrative problems caused by the free milk provision.

Studies also show that the availability of the special milk program did not deter schools and students from participating in the school lunch and breakfast programs. Only 1 of the 768 schools polled cited participation in the special milk program as a reason for not starting a school breakfast program.

The survey reinforced the findings of three previous studies, which found the availability of low-cost milk did not significantly increase the appeal of bag or a la carte lunches, nor did it lessen the chance that students would eat a Type A lunch.

The study indicates the availability of soft drinks at school did not significantly affect participation in the school lunch program. However, the available soft drinks did significantly decrease the purchase of individual cartons of milk separate from the school lunch.

Copies of Special Milk Program Evaluation and National School Lunch Program Survey (FNS-167) are available from School Programs Division, Food and Nutrition Service, U.S. Department of Agriculture, Washington, D.C. 20250.

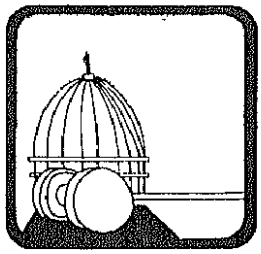
Food Aid Program Reviewed

USDA has transmitted to Congress the report of a special task force established to review the U.S. food aid program.

The report, "New Directions for U.S. Food Assistance," describes the evolution of U.S. policy since the inception of the P.L. 480 program and assesses global food aid needs and current prospects for improving food security. The report includes analysis of recipient country needs, U.S. domestic and political considerations, and the development, administration, and operation of the P.L. 480 program.

The main function of the task force, which was established in response to a congressional directive, was to study ways in which food assistance might be improved.

Copies of the report are available from the Office of International Cooperation and Development, room 143-W, U.S. Department of Agriculture, Washington, D.C. 20250.



Legislation

FOOD LEGISLATION

Georgiana Francisco and Anthony E. Gallo (202) 447-2934

For a number of years there has been talk of a new food policy. Such a policy, it is argued, would have as its basic premise an assurance that there would continue to be an adequate, safe, nutritionally balanced, and reasonably priced food supply available to all. Actions taken during the 95th Congress influenced both food policy and food program development. In this article we highlight the major Congressional actions dealing with food.

Food Production

The Food and Agriculture Act of 1977 (S. 275), became Public Law 95-113 in September 1977. It extends, through fiscal year 1981, the basic price support programs for wheat, feed grains, cotton, rice, wool, and the Food for Peace Program. The dairy price support program was also continued. The Act gives a 3-year extension to the authorization of the Environmental Protection Agency to regulate pesticides.

A new charter for the Federal role in agriculture research was also established. Research provisions for agriculture and human nutrition could have significant long-run effects on U.S. food production and consumption. The increased emphasis on human nutrition research may provide information about the nutritional adequacy of diets, food safety, and the social and behavorial factors that affect food choices.

Food Stamps

The Food and Agriculture Act of 1977 extends the Food Stamp Program though 1981. A major objective of this legislation was to make it easier for eligible nonparticipant households to receive food assistance. To help accomplish this, the purchase requirement was eliminated, and the process for determining eligibility requirements was tightened. The end result will be to increase benefits to those with lower incomes and to decrease or eliminate benefits to those with higher incomes. The work requirement in the new law excludes households with a mentally fit person between the ages of 18 and 60 who refuses to register, search for, or take on acceptable work. In addition, 14 pilot projects were established to require food stamp registrants to accept public service jobs under certain conditions. (For additional details on the Food Stamp Program see *Domestic Food Programs* in this issue.)

Older Americans

The Comprehensive Older Americans Act (H.R. 12255) passed both House and Senate with amendments, becoming Public Law 95-478 on October 18. This bill extends through 1981 the Older Americans Act of 1965—the Federal Government's effort on behalf of the Nation's 35 million elderly citizens. The legislation consolidated the administrative structure of the programs for the aging, increasing the efficiency of the programs. It substantially increases authorization for multipurpose centers, community jobs, and volunteer programs for persons 60 or

more years old, and it continues the push for better legal protection for the elderly, especially those confined to nursing and rest homes. The bill also recognizes the need for more services for the homebound by introducing a separately authorized and separately funded program for home-delivered meals for the elderly.

California SSI

Congress also moved to help solve the problems associated with California's Supplemental Security Income (SSI) Program. Recipients lost their food stamp "cash-out" status on September 1. Previously, the State's SSI recipients received the cash value of their food stamp bonus as part of their State SSI check. Constraints on the State budget, caused by the passage of Proposition 13, put a stop to the cost-of-living increases required to maintain the cash-out.

California and USDA officials developed a special "demonstration" program that will use a State-centralized automation system and computerized SSI information to determine the food stamp eligibility of SSI recipients. There will be no need for individual interviews.

The 10-month project will prevent the loss of supplemental food benefits to thousands of eligible aged, blind, and disabled persons.

Child Nutrition

On November 11, the President signed into law an act providing funds for school food and child care food and extending the Suppplemental Food Program for Women, Infants, and Children (WIC). It extends the WIC program for 4 years, with changes designed to improve the means by which States provide nutritious supplemental foods to eligible women, infants, and children. Of the sums appropriated for any fiscal year, one-half of 1 percent, not to exceed $3 million, would be available for evaluation of program performance, health benefits, and administrative costs.

The new bill also amends the National School Lunch Act to extend the Child Care Food Program through 1982. It sets the formula for reimbursement assistance to States for meals served to children in institutions other than family and group day care homes based on the percentage of children from families classified under the law as needy. It directs the Secretary of Agriculture to establish maximum per meal reimbursement rates for each such percentage category. It also states that reimbursement for administrative expenses shall include start-up funds to make it easier for institutions to initiate operation under the program.

An earlier version of the measure just enacted included a school breakfast mandate program. The Federal requirement to establish a breakfast program in schools was dropped, and replaced with further incentives to schools deciding to offer a morning meal to their students. The incentives include funds for the purchase of kitchen equipment, simplified bookkeeping, and a reimbursement rate for meals served to especially needy students.

Sugar

The Sugar Stabilization Act did not make it through the 95th Congress. It would have authorized the President to implement the International Sugar Agreement (ISA), including authority to limit entry of sugar from non-ISA member countries, and establish a price objective of 16 cents per pound raw value for sugar beginning October 1, 1978. The failure left a pending international sugar agreement without ratification, and left domestic producers with an expiring support program.

However, sugar legislation may get consideration early in the 96th Congress. The President will probably send a bill to the new Congress and it could be one of the first items to be taken up on the agenda of the House Agriculture Committee. The result of any new legislation raising the market support price will be important to sugar consumers. Some analysts have estimated that each 1-cent increase will cost consumers an additional $300 million when their impact of these higher prices on substitute sweeteners is taken into account.

Meat

The 95th Congress partially rewrote a beef import quota bill (H.R. 11545) in response to the Administration's objection that it was too inflationary. The bill that cleared Congress just before adjournment would have

sharply curbed the President's authority to lift meat import quotas. The bill would have made two major changes in the 1964 Meat Import Act (PL 88-842). It would have revised the formula for determining the quota levels on meat (beef, veal, and mutton), so that when domestic supplies are scarce and prices high, more imported meat would come onto the U.S. market. Imports would have been restricted when domestic supplies expanded. The second major change, a sharp restriction in the President's authority to lift the quota, along with inflationary measures, proved to be the death blow to the bill passed by Congress. The President vetoed the bill on November 11.

National Consumer Cooperative Bank

On August 20, 1978, the President signed the National Consumer Cooperatives Bank Act. This Act provides consumers with another way to minimize the impact of inflation. It will help narrow the price spread between costs to producers and consumers of needed goods, services, facilities, and commodities through the development and funding of specialized credit sources for, and technical assistance to, self-help, nonprofit cooperatives.

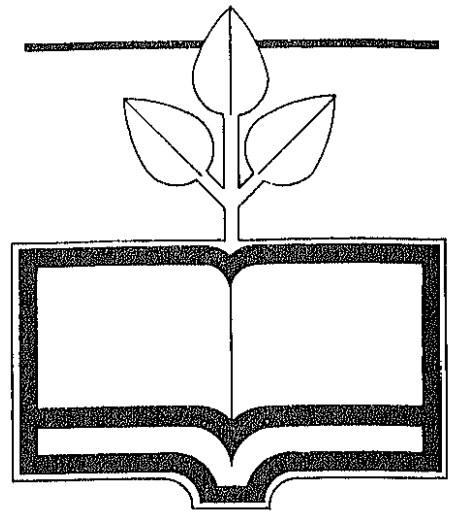
The most important functions of the Bank will be to:

- encourage development of new and existing cooperatives eligible for its assistance by providing specialized credit and technical assistance;
- assist in improving the quality and availability of goods and services to consumers; and
- encourage ownership of its equity securities by cooperatives and others so redemption of all U.S.-owned stock will occur as soon as practicable.

The Act established an independent, mixed ownership financial institution rather than a continuing Government lending agency like the Small Business Administration. All of the initial seed capital is to be repaid to the U.S. Treasury from purchases of stock by borrowing cooperstives and accumulated earnings. Most of the funds loaned out to cooperatives will be borrowed from investors through sale of securities and in the capital market. This approach will cost the taxpayer considerably less than any Government lending program.

As an independent financial institution, the Bank eventually will be wholly owned and controlled by cooperatives which borrow or are eligible to borrow from it. Their continuing responsibility for its operations includes a firm commitment to invest in its shares, replacing the initial Government seed capital with their own investments.

Although most of the Bank's resources will be directed toward consumer cooperatives, 10 percent has been reserved for producer cooperatives, including agriculture.



NEW PUBLICATIONS

Publications noted in this section may be obtained by writing the sources. For publications without addresses, write to Publications Unit, Room 0054, Economics, Statistics and Cooperative Services, U.S. Department of Agriculture, Washington, D.C. 20250. All publications are free unless otherwise noted.

Nutrition Research Alternatives. Office of Technology Assessment, U.S. Congress.

This report is an assessment of Government human nutrition research programs and an analysis of nutrition research alternatives. Its principal and immediate finding is that the Federal Government has failed to adjust the emphasis of its human nutriion research activity to deal with changing health problems of the people. It discusses in detail alternative research goals and priorities, funding, and resource requirements. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Nutrition Education: Policies and Programs. Luise Light. *Nutrition Program News*, Consumer and Food Economics Institute; Science and Education Administration; U.S. Department of Agriculture. January-April 1978.

Questions relative to the adequacy of nutrition education programs and policies are raised in this article. Numerous problems are inherent in the present efforts to raise the level of nutritional awareness of the American consumer. This article addresses the major issues related to the delivery of nutrition education raised by critics of the current Government programs and suggested approaches which have been recommended that have some potential for improving nutrition education programs.

Market Structure and Performance in Food Retailing. Bruce W. Marion. *Economic Issues*, Department of Agricultural Economics; College of Agricultural and Life Sciences; University of Wisconsin-Madison, 53766, No. 24; August 1978.

This article summarizes some of the findings of a research report submitted to the Joint Economics Committee by the University of Wisconsin. Copies of the full report may be requested from the author or from the Joint Economics Committee.

Data were subpoenaed from the major food retail chains on sales, profits, and prices by Congress in 1974. These data were analyzed and some of the findings are reported in this article. The level of competition is declining, particularly in local urban markets, and the rate of concentration is on an upward trend. The level of concentration is directly related to higher prices and higher profits. Several policy recommendations to alter the structure of food retailing markets are advanced.

Changing Character and Structure of American Agriculture: An Overview. Food Coordination and Analysis Staff; General Accounting Office, Washington, D.C., September 26, 1978.

Farms in the U.S. have been getting larger in size and fewer in number, and have become increasingly dependent on purchased supplies, equipment, and technology, and more sensitive to foreign markets.

This study discusses the role of agriculture and its changing character and structure, the implications and the issues that confront Congress and others concerned about the viability of the farm sector. Questions regarding this study should be addressed to: William E. Gahr, Assistant Director, Food Coordination and Analysis Staff, General Accounting Office, Washington, D.C. 20548.

What Causes Food Prices To Rise? What Can Be Done About It? *A Report to Congress*, by the Comptroller General, General Accounting Office, Washington, D.C., September 8, 1978.

The rise of food prices in recent years has been spurred by bad weather conditions and a high rate of inflation reflected in increased marketing and labor costs. Food prices do not seem to respond to market conditions. The lack of timely data further obscures the reasons behind food price behavior. GAO feels that improvements could be made in the roles that Government and industry play in reducing food prices and the rate of food price increases. Specific recommendations are also made aimed at reducing marketing costs, improving efficiency, and stabilizing food prices. Individual copies are available by request from: U.S. General Accounting Office, Distribution Section, Room 1518, 441 G Street N.W., Washington, D.C. 20548.

Economic Effects of a Prohibition on the Use of Selected Animal Drugs. Economics, Statistics, and Cooperative Services; U.S. Department of Agriculture. Agricultural Economic Report No. 414.

An economic assessment is made of the impacts that may occur in the agricultural sector from the ban on restricted use of various drugs in animal feed. Attention is focused on feed efficiency, growth, and mortality and how changes in these factors would affect costs, output, and product prices. Effects on consumers and consumer response is also evaluated.

Food Stamp Redemptions: Their Impact on Food Sales by Region, Size, and Kind of Participating Food Stores—Fiscal 1976. Paul E. Nelson, Economics, Statistics, and Cooperative Service. Agricultural Report No. 410.

Food sales to food stamp customers and to cash customers were analyzed

according to region, size, and kind of retail food store. Differences among the distributions were identified to ascertain the impact of the Food Stamp Program in retail food sales. The report found that there were significant differences in the proportion of food stamp sales in small independent retail food outlets as opposed to the larger chain store operations. Higher proportions of Food Stamp sales were found in the Mid-Atlantic, New England, and the Southeast regions.

Status of the Family Farm. A Report to the Congress, by Donn A. Reimund, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, September 1978.

This report attempts to put into perspective the volatile "family farm" issue in the light of present economic realities, past trends, and future policy alternatives. The report provides insight into the forces which have affected the structure of agriculture. Economic and market conditions, technological change, and public policies will all have substantial impact on the family farm.

Public Policy and the Changing Structure of American Agriculture. Peter M. Emerson, Natural Resource and Commerce Division; Congressional Budget Office; U.S. Congress. September 1978.

This background paper, requested by a House subcommittee, discusses the historical changes that have taken place in the structural organization of the farm sector, the economic and other factors that determine its present structure, and the policy options that will determine its future structure. Although implications of policy alternatives are discussed, in keeping with CBO's mandate, no conclusions or recommendations are offered. For sale by the Superintendent of Documents, U.S. Printing Office, Washington, D.C. 20402.

A Guide to Understanding the 1977 Food and Agricultural Legislation. Thomas A. Stucker and Willism T. Boehm, National Economic Analysis Division; U.S. Department of Agriculture. AER-411, September 1978.

The Food and Agriculture Act of 1977 contains the authorization for the next 4 years for the commodity programs, federally supported agricultural and human nutrition research and the Food Stamp Program, as well as the National School Lunch and Child Nutrition Act, as amended. The authors, using the implications for consumers as the principal focus, discuss the meaning and potential effects of the 1977 legislation. Theoretical aspects of policy alternatives are discussed in analyzing the policy goals of the 1977 Acts. Changes and amendments since the enactment of the 1977 act are not treated.

The Latest Scoop: 1977 Facts and Figures on Ice Cream and Related Products. International Association of Ice Cream Manufacturers, Washington, D.C. Special Bulletin No. 123, August 1978.

This publication contains production, employment, capital investment, and price statistics for the frozen dessert industry. Single copies are priced at $1.00 to IAICM members and $5.00 to nonmembers and may be obtained from the Association at 910 17th Street N.W., Washington, D.C. 20006.

Livestock and Derived Feed Demand in the World GOL Model. Donald W. Regier, Foreign Demand and Competition Division; Economics, Statistics, and Cooperatives Service; U.S. Department of Agriculture. Foreign Agricultural Report No. 152, September 1978.

This study reports the results of an analysis of the world feed and livestock sector using the World G.O.L. Model, a mathematical model of the combine grain, oilseed, and livestock sectors of the world developed by ESCS. The study provides documentation for the various supply and demand statistics and input-output coefficiencies used in the model. World, regional, and country projections to 1985 of demand and production are developed.

The Food Stamp Program: A Review of Selected Economic Studies. National Economic Analysis Division; Economic, Statistics and Cooperatives Service; U.S. Department of Agriculture. ESCS-34, September 1978.

This bibliographic review contains brief descriptions of major empirical studies of the Food Stamp Program up to 1976. The studies that have been included cover various aspects of the present Food Stamp Program and its predecessors. This review should be helpful to both researchers and policymakers concerned with the important domestic program.

Appendix

CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS, U.S. AVERAGE (NOT SEASONALLY ADJUSTED)

	1977	1978								
	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Consumer price index, all items	186.1	187.2	188.4	189 8	191.5	193 3	195.3	196.7	197 8	199.3
Consumer price index, less food	183.1	183.8	184 7	185.9	187.4	189.0	190.6	192.0	193.3	195.1
All food	196.3	199.2	202.0	204.2	207.5	210.3	213.8	215.0	215.4	215.6
Food away from home	206.2	208.2	210.5	212.3	214.0	215.8	217.8	219.9	221.7	223.2
Food at home	193.7	197.0	200.1	202.5	206 6	209.7	213.9	214.7	214.5	214.1
Meats[1]	178.3	183.1	188.7	193.6	200.8	206 2	216.5	214.6	213.2	212.7
Beef and veal	168.0	171.1	177.0	182.0	191.9	201.0	216.0	213.0	211 6	209.7
Pork	191.7	199.6	205.2	208.4	211.5	211.3	216.8	214.4	212.4	213.7
Poultry	153.6	157.5	161.5	163.9	169 3	171.0	178.4	185.2	179.1	177.9
Fish	262.6	266.3	266.5	267.4	271.6	272.8	273.5	275.6	277.2	280.0
Eggs	148.6	166.1	169.1	160.7	155.3	147.4	137.0	146.5	164 1	161.9
Dairy products[2]	176.9	177.7	178.8	179.3	181.6	183.5	184.8	185.3	186 1	188.8
Fats and oils[3]	196.1	198.1	198.9	200.4	204.5	207.9	210.9	213.5	214.5	215.4
Fruits and vegetables	192.6	197.2	200.9	203.8	210.9	219.3	223.5	226.6	221.4	216.2
Fresh	188.0	196.0	200.3	204.6	217.3	233.3	240.1	242.5	233.8	222.5
Processed	199.2	201.5	203.3	204.6	206.7	205.9	207.0	208.8	209.7	211.2
Cereals and bakery products	189.0	191.3	193.1	194.4	195.2	197.5	199.8	201.3	203.1	203.8
Sugar and sweets	239.7	244.9	248.1	261.7	264.9	266.4	259.0	260.4	262.0	261.8
Beverages, nonalcoholic	334.3	337.1	339.5	341.7	342.9	341.6	341.6	341.6	340.7	339.8

[1]Beef, veal, lamb, pork, and processed meat. [2]Includes butter. [3]Excludes butter.

LIVESTOCK PRODUCTS: PER CAPITA CONSUMPTION INDEXES, QUARTERLY[1]
1967=100

	1977				1978[2]			
	I	II	III	IV	I	II	III	IV
Meat	108.2	105.0	106.3	108.3	104.0	101.4	102.2	104.8
Poultry	106.0	113.7	122.8	136.7	111.0	123.6	127.0	141.9
Eggs	83 6	82.6	83.5	89.4	84.5	84 6	84.5	86.6
Dairy products								
Excluding butter	98.8	99.8	101.4	98.8	100.0	100.9	101.3	99.4
Including butter	97.6	98.5	100.0	98.0	99.1	99.6	100.3	98.6
Animal fats including butter	71.6	71.0	72.8	77.3	77.3	72.8	77.3	78.6
Total livestock product[3]	102.0	101.6	103.8	105.9	101.2	101.4	102.4	104.8

[1]Civilian consumption only. Quantities of individual foods measured in pounds equivalent to the form sold by retail food stores, combined in terms of average 1967-69 retail prices. [2]Preliminary. [3]Excludes fish.

	1960	1970	1972	1973	1974	1975	1976	1977	1978[2]
					Pounds				
Meats	134 1	151 4	153 5	142 6	152 5	145.4	155 3	154.6	149 6
Beef	64.3	84.1	85 9	81 1	86.4	88.9	95.7	93.2	89 0
Veal	5 2	2.4	1.8	1 5	1.9	3.5	3 3	3.2	2 5
Lamb and mutton	4.3	2 9	2.9	2 4	2.0	1 8	1.7	1.5	1.4
Pork	60.3	62 0	82 9	57 6	62.2	51 2	54.6	56.7	56.7
Fish (edible weight)	10.3	11 8	12 5	12.9	12.2	12 2	13.0	12.6	12 9
Poultry products									
Eggs	42 4	39.5	39 1	37.3	36 6	35 4	34.8	34 5	34 6
Chicken (ready-to cook)	27.8	40 5	42 0	40.7	41 1	40.3	43 3	44 9	47 5
Turkey (ready-to-cook)	6 2	8.0	9.0	8.5	8.9	8 6	9 2	9 2	9 5
Dairy products									
Cheese	6 3	11 5	13.2	13 7	14 6	14 5	15.8	16.4	17 4
Condensed and evaporated milk	13 7	7.1	6 3	6.0	5 6	5 0	3.6	3.3	2 9
Fluid milk and cream (product weight)	321.0	296 0	298.0	293 0	288.0	291.1	292 0	289 4	288.9
Ice cream (product weight)	18.3	17.7	17.4	17 5	17.5	18.7	18 1	17 7	17.7
Fats and Oils—Total fat content	45.3	53 0	54.3	54.3	53.2	53.4	56.1	54.4	56.0
Butter (actual weight)	7 5	5.3	4.9	4 8	4.6	4 8	4.4	4 4	4.6
Margarine (actual weight)	9.4	11 0	11.3	11.3	11 3	11.2	12.2	11.6	11.9
Lard	7.6	4 7	3.8	3 4	3.2	4.0	3.6	3.5	3.7
Shortening	12 6	17.3	17 7	17 3	17 0	17.3	18.1	17.6	18.0
Other edible fats and oils	11.5	18 2	19 8	20.8	20 3	20.3	22.0	21.6	22 0
Fruits.									
Fresh	90.0	79.1	74 7	74.0	76.3	81 3	84.4	81.2	80.3
Citrus	32 5	27.9	26.6	26.7	26 8	28.7	28.5	25.2	24 6
Noncitrus	57.5	51 2	48.1	47 3	49 5	52 6	65 9	56.0	55.7
Processed.									
Canned fruit	22.6	23.3	21.4	21.3	19.6	19 3	19.2	20 0	17.2
Canned juice	13 0	14 6	15.5	15 9	14 7	15.3	16.2	15.6	18.0
Frozen (including juices)	9 1	9 8	10 4	11.2	11.3	12.6	12.2	11.9	11.4
Chilled citrus juices	2.1	4.7	5 2	5 3	5 2	5.7	6.5	6 0	6.0
Dried	3.1	2 7	2 0	2 6	2.5	3.0	2.7	2.7	2.6
Vegetables.									
Fresh[3]	96.0	91 0	90.8	92.7	93 6	93 9	94 7	93.2	95.2
Canned (excluding potatoes and sweetpotatoes)	43.4	51.2	52 2	54 3	53 3	52.1	53.0	52 9	53.0
Frozen (excluding potatoes)	7.0	9 6	10 0	10 7	10 2	9.7	10.2	10 3	10.9
Potatoes[4]	105 0	115 3	116 9	114.4	112.3	120.2	114.9	119 8	125.4
Sweetpotatoes[4]	6.5	5 2	4.7	4.7	5.1	5.3	5.0	4.6	4.9
Grains									
Wheat flour[5]	118	110	109	109	106	107	111	108	112
Rice	6.1	6.7	7.0	7 0	7 6	7.7	7.2	7.6	5.8
Other.									
Coffee	11.6	10 5	10 5	10.1	9 5	9.0	9.7	6.9	7.3
Tea	6	.7	.8	.8	.8	8	.8	.9	8
Cocoa	2.9	3.1	3.5	3.4	3.0	2.6	3.0	2.7	2 6
Peanuts (shelled)	4.9	5.9	6.2	6 6	6.4	6.5	6 3	6.5	6.6
Dry edible beans	7.3	5.9	6.3	6 4	6 7	6.5	6.3	6.0	6.0
Melons	23.2	21.2	19.9	19.7	17 2	17 5	20 5	21.2	21.3
Sugar (refined)	97.4	101.8	102.8	101.5	96.6	90.2	94.7	95 7	93.2

[1]Quantity in pounds, retail weight unless otherwise shown. Data on calendar year basis except for dried fruits, fresh citrus fruits, peanuts, and rice which are on a crop-year basis. [2]Preliminary. [3]Commercial production for sale as fresh produce. [4]Including fresh equivalent of processed. [5]White, whole wheat, and semolina flour including use in bakery products

Note: Historical consumption and supply-utilization data for food may be found in *Food Consumption, Prices, and Expenditures*, Ag. Econ. Report 138 and annual supplements, ESCS, USDA.

PRODUCER PRICE INDEXES, U.S. AVERAGE (NOT SEASONALLY ADJUSTED)

	Annual			1977	1978					
	1975	1976	1977	Oct	May	June	July	Aug	Sept	Oct
					1967=100					
Finished goods[1]	163.4	170.3	180.6	183.9	193.1	194.4	195.9	195.3	196.9	199.7
Consumer foods	181.0	180.2	189.2	189.9	206.8	209.4	210.7	205.8	209.4	212.5
Fruits and vegetables[2]	183.7	178.4	192.2	188.0	220.3	230.2	252.3	215.2	209.8	225.9
Eggs	169.8	179.1	162.0	137.6	141.2	127.5	150.2	168.1	167.8	156.3
Bakery products	178.6	180.0	186.5	189.2	197.5	198.9	202.6	203.3	204.9	207.8
Meats	188.7	173.6	170.7	175.6	216.0	220.4	213.2	206.9	215.6	222.1
Beef and veal	176.3	166.0	167.5	163.8	216.3	221.6	213.2	196.8	210.0	209.7
Pork	214.7	201.4	190.1	195.6	214.6	219.6	213.1	219.3	223.9	240.7
Poultry	184.1	166.2	173.3	170.1	189.2	210.7	231.5	199.2	203.5	184.4
Fish	218.7	272.4	294.3	283.6	297.1	295.1	313.4	316.6	329.9	337.7
Dairy products	155.8	168.5	173.4	175.9	184.5	185.4	186.1	190.8	192.9	197.0
Processed fruits and vegetables	169.8	170.2	187.4	190.4	197.3	198.7	200.3	203.3	204.9	210.3
Refined sugar[3]	n.a.	n.a.	n.a.	n.a.	107.6	107.3	106.7	106.8	108.2	110.6
Vegetable oil and products	211.6	174.2	198.1	195.1	219.8	217.9	217.6	208.6	212.9	212.2
Consumer finished goods less foods	153.1	161.8	172.1	175.5	181.9	182.6	184.6	185.3	186.0	188.6
Beverages, alcoholic	134.7	138.1	139.7	141.3	146.2	146.7	147.0	148.7	149.6	151.1
Beverages, nonalcoholic	186.1	187.2	198.1	202.1	211.0	211.7	211.7	211.7	212.5	219.1
Apparel	133.4	139.9	147.3	148.6	160.8	151.7	152.8	153.3	153.2	154.3
Footwear	147.8	158.9	168.7	171.2	181.4	181.6	182.2	184.6	186.5	191.2
Tobacco products	149.6	163.0	179.8	189.6	191.4	196.1	206.1	205.1	205.1	203.7
Intermediate materials[4]	180.0	189.3	201.7	204.4	213.8	214.8	216.8	217.2	218.7	220.7
Materials for food manufacturing	209.4	180.6	181.7	177.4	203.8	204.1	204.0	203.3	208.1	210.0
Flour	163.4	147.8	118.9	118.5	142.3	140.6	143.0	143.7	144.0	146.6
Refined sugar[5]	n.a.	n.a.	n.a.	n.a.	108.3	107.8	105.8	109.8	112.0	116.0
Crude vegetable oils	208.1	162.6	197.6	164.3	232.1	219.7	225.1	222.2	243.1	232.7
Crude materials[6]	196.9	206.1	214.3	207.6	241.2	245.3	245.4	240.2	244.9	249.9
Foodstuffs and feedstuffs	191.8	190.1	190.9	182.7	219.1	223.7	222.0	213.2	218.6	224.4
Fruits and vegetables[2]	183.7	178.4	192.2	188.0	220.3	230.2	252.3	216.2	209.8	225.9
Grains	223.8	205.9	165.0	144.7	189.2	188.1	183.8	178.9	176.9	182.0
Livestock	187.8	173.3	173.0	177.6	230.3	236.2	228.8	216.6	226.8	235.1
Poultry, live	188.8	186.9	176.4	170.6	194.5	221.6	246.5	204.8	211.1	184.9
Fibers, plant and animal	153.1	223.9	202.3	166.9	191.8	192.9	189.9	197.6	201.2	210.3
Milk	180.2	201.2	202.8	209.6	212.1	212.1	216.3	220.6	226.9	231.8
Oilseeds	198.6	204.4	236.7	182.4	234.4	229.6	232.2	223.9	219.6	228.7
Coffee, green	177.8	305.5	506.1	394.7	378.1	390.1	370.4	334.4	372.1	384.8
Tobacco, leaf	n.a.	184.2	176.1	177.7	n.a.	183.9	186.2	194.9	206.8	n.a.
Sugar, raw cane	316.2	186.5	149.5	134.0	187.1	189.8	182.7	194.7	193.3	206.9
All commodities	174.9	183.0	194.2	198.3	207.9	209.4	210.8	210.4	212.3	216.0
Industrial commodities	171.6	182.4	195.1	199.1	207.3	208.5	209.9	211.2	212.4	214.7
All foods[7]	186.0	178.9	188.8	187.2	208.6	208.9	210.7	206.1	209.7	213.2
Farm products and processed foods and feeds	184.2	183.1	188.8	184.0	207.7	210.4	210.6	205.3	209.6	213.6
Farm products	186.7	191.0	192.6	182.0	216.7	219.5	219.9	210.3	216.3	220.7
Processed foods and feeds	182.6	178.0	186.1	184.3	202.6	204.6	204.5	201.8	206.6	209.0
Cereal and bakery products	178.0	172.1	173.4	176.6	188.2	188.0	191.9	191.7	190.9	193.2
Sugar and confectionery	264.3	190.9	177.4	170.1	197.1	198.0	196.6	201.0	202.6	205.4
Beverages	162.4	173.5	201.0	206.0	199.6	200.0	198.8	197.2	197.8	201.1
Wholesale spot prices, 9 foodstuffs	227.3	201.6	208.2	201.2	243.7	240.8	234.9	241.4	248.7	253.1

[1]Commodities ready for sale to ultimate consumer. [2]Fresh and dried. [3]Consumer size packages, Dec. 1977=100. [4]Commodities requiring further processing to become finished goods. [5]For use in food manufacturing. [6]Products entering market for first time which have not been manufactured at that point. [7]Includes all processed food (except soft drinks, alcoholic beverages, and manufactured animal feeds) plus eggs and fresh and dried fruits and vegetables. n.a. = not available.

MARKET BASKET OF FARM FOODS

	1976		1977				1978p		
	III	IV	I	II	III	IV	I	II	III
Market basket[1]:									
Retail cost (1967=100)	176.0	173.5	177.1	178.8	180.3	180.6	188.1	199.1	204.2
Farm value (1967=100)	177.9	167.6	175.6	178.6	179.8	178.7	191.2	211.1	214.3
Farm-retail spread (1967=100)	174.9	177.1	178.0	178 9	180.6	181.8	186.1	191.8	198.1
Farm value/regail cost (%)	38.2	36.6	37.4	37.7	37.7	37.3	38.4	40.0	39.8
Meat products:									
Retail cost (1967=100)	180.7	175.2	170.7	171.5	177.1	177.6	188.5	207.8	213.5
Farm value (1967=100)	167.3	152.0	160.5	170.6	174.2	173.9	190.3	215.8	218.9
Farm-retail spread (1967=100)	198.2	191.8	183.9	172.7	181.0	182.5	186.0	197.6	206.5
Farm value/retail cost (%)	52.3	50.7	63.1	56.2	55.5	55.3	57.0	58.6	67.9
Dairy products:									
Retail cost (1967=100)	168.3	171.7	170.9	172.4	173.8	176.2	178.6	183.3	186.7
Farm value (1967=100)	188.9	184.4	182.1	186.4	190.7	190.6	194.5	199.8	204.7
Farm-retail spread (1967=100)	150.4	160.6	161.1	161.0	169.2	163.7	184.7	169.0	171.0
Farm value/retail cost (%)	52.2	50.0	49.6	50.1	51.1	50.4	50.7	50.7	51.0
Poultry:									
Retail cost (1967=100)	169.8	146.5	163.8	159.5	162.2	157.0	161.1	172.9	180.7
Farm value (1967=100)	181.6	153.3	170.8	186.0	189.5	167.6	178.4	208.6	226.0
Farm-retail spread (1967=100)	138.7	139.9	137.3	133.9	135.7	146.8	144.1	138.3	137.0
Farm value/retail cost (%)	56.9	51.5	54.6	57.3	57.5	52.5	54.5	59.3	61.6
Eggs:									
Retail cost (1967=100)	175.9	189.1	200.5	154.5	166.9	154.4	158.6	146.6	157.5
Farm value (1967=100)	207.7	223.1	227.6	168.0	187.7	166.7	184.2	164.4	181.3
Farm-retail spread (1967=100)	132.5	140.0	161.4	136.1	136.8	136.5	121.8	135.3	123.1
Farm value/retail cost (%)	69.4	69.7	67.1	84.2	66.5	63.8	88.6	62.2	88.0
Cereal and bakery products:									
Retail cost (1967=100)	180.3	180.6	181.2	183.6	183.1	187.2	192.9	197.4	202.7
Farm value (1967=100)	159.3	137.0	140.6	136.4	132.1	144.0	156.7	169.9	184.1
Farm-retail spread (1967=100)	184.6	189.6	189.6	193.3	193.6	196.1	199.4	203.1	210.7
Farm value/retail cost (%)	15.2	13.0	13.3	12.7	12.4	13.2	13.7	14.8	13.9
Fresh fruits:									
Retail cost (1967=100)	172.2	170.3	172.7	188.7	198.8	181.3	198.4	228.8	282.6
Farm value (1967=100)	166.3	166.0	157.3	164.5	180.7	196.7	206.2	240.9	260.7
Farm-retail spread (1967=100)	174.9	172.2	179.6	199.6	202.6	188.9	194.9	223.3	263.6
Farm value/retail cost (%)	29.9	30.2	28.2	27.0	29.7	31.9	32.2	32.6	30.8
Fresh vegetables:									
Retail cost (1967=100)	174.6	176.2	210.0	220.6	189.4	182.2	206.0	238.2	219.4
Farm value (1987=100)	170.6	187.6	258.0	204.3	179.2	180.4	186.9	270.8	232.2
Farm-retail spread (1967=100)	176.4	170.8	187.5	228.2	194.1	183.1	216.0	222.9	213.3
Farm value/retail cost (%)	31.3	34.1	39.3	29.6	30.3	31.6	29.0	36.4	33.8
Processed fruits and vegetables:									
Retail cost (1967=100)	180.6	182.7	184.7	188.1	181.2	196.0	203.1	206.2	209.9
Farm value (1967=100)	199.7	200.0	183.0	186.4	187.9	196.7	208.0	216.7	216.0
Farm-retail spread (1967=100)	176.3	178.8	185.1	189.7	191.9	195.8	202.0	203.8	208.8
Farm value/retail cost (%)	20.0	19.8	18.0	17.9	17.8	18.2	18.6	19.0	18.6
Fats and oils:									
Retail cost (1967=100)	171.9	178.6	181.1	189.0	200.6	197.2	199.1	207.8	214.6
Farm value (1967=100)	231.9	227.4	243.9	296.0	236.6	222.6	232.4	273.8	267.9
Farm-retail spread (1967=100)	148.9	168.8	157.0	148.2	187.0	187.4	186.4	182.3	193.9
Farm value/retail cost (%)	37.6	36.4	37.4	43.4	32.6	31.4	32.4	36.6	34.7

[1]Market basket statistics have been revised to adopt weight structure of the new Consumer Price Index for all urban consumers (CPI-U). Retail costs are based on indexes of retail prices for domestically produced farm foods from the CPI-U published monthly by the Bureau of Labor Statistics. The farm value is the payment to farmers for quantity of farm product equivalent to retail unit, less allowance for by-product. Farm values are based on prices at first point of sale and may include marketing charges such as grading and packing for some commodities. The farm-retail spread, the difference between the retail price and the farm value, represents charges for assembling, processing, transporting, and distributing these foods.

PERSONAL CONSUMPTION EXPENDITURES: MAJOR ITEMS

	1975	1976	1977	1977 I	1977 II	1977 III	1977 IV	1978 I	1978 II	1978 III[1]
	Billions — Current dollars[2]									
Food excluding alcoholic beverages	184.1	199.1	217.0	207.7	216.1	218.3	224.0	229.1	238.2	241.8
For use at home	140.3	149.5	161.4	156.1	161.3	161.9	166.4	170.7	170.0	179.4
Food away from home	43.8	49.6	55.6	53.6	54.8	56.4	57.6	58.4	61.2	62.4
Nondurables excluding food	224.8	243.5	262.0	256.2	257.4	261.4	272.8	273.3	281.0	287.6
Clothing and shoes	70.1	76.7	81.6	78.6	79.3	81.4	86.8	82.9	87.6	90.2
Gas and oil	39.5	42.8	46.5	46.1	46.2	46.0	47.5	48.3	49.0	50.8
Fuel oil and coal	10.2	12.2	13.5	13.9	12.9	13.1	13.7	15.8	15.2	14.1
Alcoholic beverages	24.9	26.7	28.2	27.7	28.4	28.1	28.5	28.6	29.6	30.2
Other	79.4	86.2	92.4	87.9	90.6	92.8	96.2	96.7	99.7	102.4
Durable goods	132.6	156.6	178.4	173.2	176.8	177.4	181.2	183.5	197.8	199.4
Motor vehicles and parts	53.4	69.7	81.5	81.3	81.2	79.5	84.0	84.1	92.5	90.0
Furniture and household equipment	58.0	63.8	71.3	68.0	69.9	72.0	75.3	72.1	76.5	78.6
Other durables	21.2	23.0	25.6	24.9	24.6	25.8	27.9	27.3	28.8	30.7
Services	437.5	491.0	549.2	520.6	539.4	557.5	571.1	591.8	606.8	626.8
Housing	150.2	166.4	184.6	177.3	182.1	186.9	192.0	198.1	204.1	209.6
Household operation	64.5	72.8	81.6	80.2	75.0	83.7	84.6	89.6	88.8	92.9
Transportation	32.6	37.9	44.2	40.8	43.6	46.0	47.3	49.7	52.1	56.0
Other	190.3	214.0	238.8	230.2	235.8	241.9	247.3	254.4	260.6	268.3
Total Personal Consumption Expenditures	979.1	1,090.2	1,206.5	1,167.7	1,188.6	1,214.5	1,266.2	1,276.7	1,322.8	1,364.5
Total Disposable Personal Income	1,086.7	1,184.4	1,303.0	1,248.0	1,285.3	1,319.1	1,369.6	1,381.6	1,433.3	1,464.7
Food excluding alcohol	129.7	136.7	142.4	140.7	141.7	142.4	144.9	143.3	141.8	142.0
Food for use at home	96.6	101.5	105.5	104.1	105.1	105.3	107.5	106.4	104.1	104.5
Food away from home	33.1	35.2	36.9	36.6	36.6	37.1	37.4	36.9	37.7	37.6
Nondurables excluding food	176.8	183.5	188.0	186.4	186.5	186.9	193.1	190.0	194.4	197.2
Durables	112.7	125.9	137.8	134.9	136.2	136.9	143.0	137.8	145.8	144.6
Services	355.3	373.2	389.5	384.6	386.0	391.8	395.6	402.4	404.2	409.8
Total Personal Consumption Expenditures	774.6	819.4	867.7	846.6	847.5	868.0	876.6	873.5	886.3	893.7

[1]Preliminary. [2]Quarterly data is seasonally adjusted at annual rates.

Source: U.S. Department of Commerce. Totals may not add due to rounding.

PER CAPITA FOOD CONSUMPTION INDEXES[1]

	1960	1970	1972	1973	1974	1975	1976	1977[2]	1978[7]
					1967=100				
Meat, poultry, and fish	89.4	104.9	107.2	100.9	106.2	102.8	109 8	109.7	107.8
Meat	91 9	104.0	105 2	97 8	104 6	101.0	107.6	106.9	103.1
Poultry	75.3	107.1	112 8	108.8	110 6	108.2	116 1	119.5	125.9
Fish	97.0	110.7	117.5	121.3	114.7	113.9	121 0	119.7	120.5
Eggs	104.2	97.0	96.1	91.6	89.9	87 0	85 5	84.8	85.0
Dairy products[3]	105.4	98.9	99.5	99.2	97.4	98.3	98.9	98 5	99 4
Fats and oils	95.4	106.6	109.3	109.8	106.9	107.8	112 6	109.6	112.4
Animal	119.2	90.4	83.9	77.8	76.2	72.6	71 2	73.2	76.6
Vegetable	82.2	115.5	123 3	127.5	123.9	127.2	135.4	129 6	132.2
Fruits[4]	102.9	102.7	100.4	102 7	102.3	109.2	111.7	109 7	107.7
Fresh	112.0	100.6	94.4	94.4	97.4	104.3	107 4	106.1	105.1
Processed	94.8	104.6	105.8	110 1	106.6	113.5	115 6	113.0	110.0
Vegetables[5]	99.3	101.7	102.5	105.2	104.2	103.4	105.9	105.1	107.1
Fresh	107.6	100 2	99.9	101.3	101.2	101.5	103.4	102.7	104.8
Processed	83.7	104 5	107.3	112.4	109.8	107.1	110 5	109.7	111.4
Potatoes and sweetpotatoes	81.8	114.8	116.0	116.7	117.7	121.3	113 9	115.8	120.5
Fresh	133.8	95.0	91.7	83.6	80.1	90.8	85.9	98 5	91.1
Processed	58.2	123.7	127.0	131.7	134.9	135.2	126 6	128.2	133.9
Beans, peas, and nuts	96.6	98.4	103.8	104.6	100.4	106.6	104.5	104.3	105.7
Cereal products	102.0	97.9	97.6	97.8	96.0	96.6	99.1	96.8	98.2
Sugar	98.1	105.9	108.4	109.2	106.6	102.9	109.4	111 7	111.2
Coffee, tea, and cocoa	100.2	93.7	97.9	96 7	91.8	90.8	93.0	74 5	75.4
Total food	96.4	102.7	104 0	102.2	102.9	102.0	105.6	104 5	104.5
Animal products	95.5	102.2	103.6	99.2	101 8	99.7	104.0	103.9	103.0
Crops[6]	97.4	103.2	104.5	105.9	104.1	104.9	107.4	105.3	106.2

[1]Civilian consumption only. Quantities of individual foods are combined in terms of 1967-69 retail prices. [2]Preliminary [3]Includes butter. [4]Excludes melons and baby food. [5]Excludes soup, baby food, dry beans and peas, potatoes, and sweetpotatoes. [6]Includes melons, nuts, soup, and baby food in addition to groups shown separately. [7]Forecast.

PERCENT OF INCOME SPENT ON FOOD BY RACE AND INCOME

Income Group	Under $5,000		$5,000-$8,000		$8,000-$12,000		$12,000-$15,000		$15,000-$20,000		$20,000 & Over	
Race	White	Black	White	Black	White	Black	White	Black	White	Black	White	Black
Income plus food stamp bonus ($)	2,819	2,743	6,450	6,484	9,899	9,698	13,226	13,330	17,110	16,881	28,340	26,605
Food as a percent of income	39.6	43.4	23.6	25.0	19.1	19.8	16.1	16.3	14.7	12 9	10.5	10.6
Food at home as percent of income	32 8	39.3	18.3	21.1	14.1	16.2	11.8	11.6	10.5	9.6	6.9	8 0
Food away from home	6.9	4.1	6.3	3.9	4.9	3.6			4.2	3.3	3.6	2.6
Food at home	83.6	90.5	81.8	84.4	72.4	81.8	63.6	75.8	71.5	74.4	63.7	75.5
Food away from home	17.4	9.5	18.2	15.6	26.6	18.2	36.4	24.2	28.5	25.6	34.3	24.5
Family size	1.87	2.44	2.49	3.55	3.03	3.60	3.4	4.0	3.7	3.8	3.7	3.8
Age of household heads	61.3	54.1	47.7	43.3	42.7	41.4	42.7	44.2	42.7	42.3	45.9	44.2
Percent of families within racial group	26.0	46.3	16.0	17.3	20.8	17.8	12.6	7.2	13.0	7.1	11.5	4.2
Percent of total families	22.2	4.8	14.4	1.8	18.7	1.8	11.4	1.0	11.7	1.0	10.3	4

Source: CES Tapes.